

**IBM® Cognos® Report Studio:
Author Professional Reports
Fundamentals (v10.1)**
Instructor Guide Volume 2
CourseCode: B5158

*IBM® Cognos® Report Studio: Author
Professional Reports Fundamentals (v10.1)*

B5158

ERC: 2.0

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Focus Reports Using Prompts

IBM Cognos BI



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Objectives

- At the end of this course, you should be able to:
 - identify various prompt types
 - use parameters and prompts to focus data
 - search for prompt types
 - navigate between pages

If you intend to teach this module in custom courses, students should be familiar with:

- Report Studio Basics
- Lists
- Filters
- Charts

Suggested modules to reference:

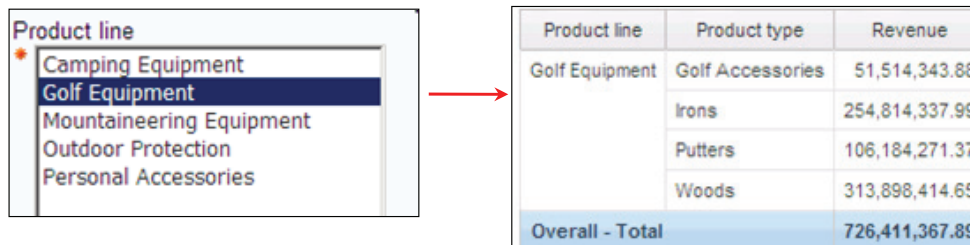
Introduction to the Reporting Application

- Create List Reports
- Focus Reports Using Filters
- Present Data Graphically

INTERACTION - Star Sticker: Use the star sticker to highlight each objective as it is introduced.

Examine Parameters and Prompts

- Prompts ask the user to provide the value for the parameter that will filter the report on specific data values.



Product line	Product type	Revenue
Golf Equipment	Golf Accessories	51,514,343.88
	Irons	254,814,337.99
	Putters	106,184,271.37
	Woods	313,898,414.65
Overall - Total		726,411,367.89

There are three ways to prompt a user for report specifications:

- create a parameter for an item on the report
- add a prompt page to the report containing one or more prompt items
- add a prompt item to a report

Parameters are placeholders that require a value to determine what data to report on.

Prompts function as filters.

If you add a prompt directly onto a report page, you will either need to set the prompt to automatically submit the selection, or add a Finish prompt button to the report so that the report will regenerate using the new criteria.

If you create a parameter for an item on a report, when you run the report you will be prompted to specify a value for that item. The report appears containing the information according to the value given in the prompt. The prompt is created automatically and must be answered in order to view the report.

Parameters are based on parameterized filters. The filter consists of a query item and operator. The operator you choose will determine some of the default properties of the prompt. For example, if you choose the = operator the user will only be able to select a single option from the prompt (Multi-Select - No). If you choose the 'in' operator, the user will be able to select multiple options from the prompt.

A prompt is nothing more than a dynamic (parameterized) filter.

Demo 1: Create a Prompt by Adding a Parameter

Purpose:

You have been asked to provide a report showing product sales by date to determine the revenue generated by each individual order for some dates. Because the report contains detailed information you want to be able to filter the report to show only orders made after a specified date. You will create a parameter to prompt a user for a date and the report will return all dates greater than the one specified.

Server:	localhost
User/Password:	brettonf/Education1!
Studio:	Report Studio
Package:	Go Data Warehouse (query)
Report Type:	List
Folder:	Sales and Marketing (query)

Task 1. Open the report

1. In **Report Studio**, click **File**, **Open**, and navigate to **Public Folders\B5158\Module 07_Focus Reports Using Prompts\Demo 1 Start**, and then click **Open**.
2. Click the **Date** list column body, from the toolbar click **Sort**, and then click **Ascending**.

3. On the toolbar, click **Run Report**.

A section of the results appear as follows:

Order number	Date	Product	Revenue
100001	Jan 12, 2004	Flicker Lantern	8,624.64
100001	Jan 12, 2004	Polar Ice	9,411.6
100002	Jan 12, 2004	Bear Edge	6,690.8
100002	Jan 12, 2004	Edge Extreme	18,032.22
100002	Jan 12, 2004	Glacier GPS Extreme	24,747.82
100002	Jan 12, 2004	Insect Bite Relief	2,532
100002	Jan 12, 2004	Mountain Man Deluxe	6,825.6
100003	Jan 12, 2004	BugShield Extreme	21,170.52

The earliest date is Jan 12, 2004.

4. Click **Bottom** to see the last page of the report.

The last date is Jul 20, 2007.

5. Close **IBM Cognos Viewer**.

Task 2. Add a date parameter and run the report.

1. On the toolbar, clicks **Filters**, **Edit Filters**, and then click **Add**.
2. Click **Advanced**, and then click on **OK**.
3. Under **Available Components**, expand the **Sales and Marketing (query)** folder, expand the **Sales (query)** namespace, expand **Time**, and then double-click **Date**.
4. At the end of the expression, type **>?Date?**.

5. Click **Validate**, select **2007-Jan-1**, and then click **OK**.

The report will only retrieve data where the order date is greater than the date specified by the user.

6. Click **OK** twice to close each dialog box.

7. On the toolbar, click **Run Report**.

You are prompted to select a date and time.

8. Select **2007-Jan-1**, accept the default time, and then click **OK**.

A section of the results appear as follows:

Order number	Date	Product	Revenue
104734	Jan 8, 2007	Blue Steel Max Putter	34,320
104734	Jan 8, 2007	Course Pro Gloves	5,974.5
104734	Jan 8, 2007	Lady Hailstorm Titanium Irons	73,477.59
104735	Jan 8, 2007	Course Pro Putter	38,178.52
104735	Jan 8, 2007	Firefly Multi-light	7,670.06
104735	Jan 8, 2007	Hailstorm Steel Irons	22,773.4

9. Click **Bottom** to see the last page of the report.

The report displays results from Jan 8, 2007 to Jul 20, 2007.

10. Close **IBM Cognos Viewer**.

Leave Report Studio open for the next demo.

Results:

You created a list report showing the revenue generated by each sales order for specific dates using a parameter prompt that requires the user to select a date before generating the report.

Identify Prompt type

- Choose the appropriate prompt type and style for your reporting requirements.

Text Box Prompt	Time Prompt
Value Prompt	Interval Prompt
Select & Search Prompt	Tree Prompt
Date & Time Prompt	Generated Prompt
Date Prompt	Prompt Button

If you add prompt items to a report or prompt page, you can choose any type of prompt available in the Insertable Objects pane according to your needs. If you select items on a report and then create a prompt page, Report Studio will choose an appropriate prompt type for you.

Similarly, a generated prompt acts as a placeholder in the work area, but when the report is run, Report Studio selects the appropriate prompt type for that report.

If there are a large number of choices available (such as sales rep name), then Select & Search is a good option. This saves the user time in scrolling to look for the desired option. If the user may not know the exact name or spelling of an item, then avoid using the Text Box prompt as the user must type in the value exactly as it appears in the report.

Interval prompts are valuable for reporting on very specific time frames as they let you choose lowest to highest time intervals in days, hours, and minutes.

INTERACTION - AppShare: Navigate to the Toolbox tab to show students where the prompts are found and describe each prompt's function.

Demo 2: Add a Value Prompt to a Report

Purpose:

You will create a report to help reduce production costs. Because you have many products, you will add a prompt so that users can view products within a specified product line without closing and running the report.

Server:	localhost
User/Password:	brettonf/Education1!
Studio:	Report Studio
Package:	Go Data Warehouse (query)
Report Type:	List
Folder:	Sales and Marketing (query)
Namespace:	Sales (query)

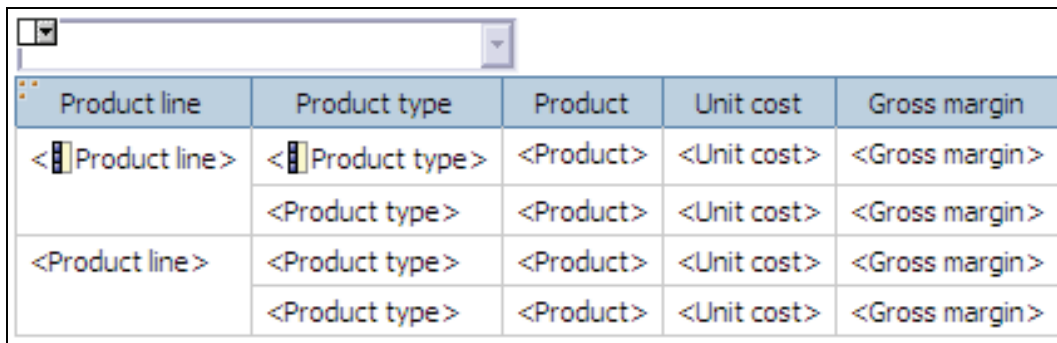
Task 1. Open the report and add a product line prompt to the report page.

1. In **Report Studio**, click **File, Open**, and navigate to **Public Folders\B5158\Module 07_Focus Reports Using Prompts\Demo 2 Start**, and then click **Open**.
2. In the **Insertable Objects** pane, click the **Toolbox** tab, and then drag a **Value Prompt** onto the work area to the left of the list.

You want the prompt to filter on product line code to make the query more efficient. However, it will display product line names, not codes, to make selections easier.

3. In the **Prompt Wizard - Value Prompt** dialog box, change the parameter name to **ProductLineCode**, and then click **Next**.
4. On the **Create Filter** page, ensure that **Create a parameterized filter** is selected, and then beside **Package item**, click the **ellipsis**.
5. Expand the **Sales and Marketing (query)** folder, **Sales (query)** namespace, **Products** folder, and then **Codes** folder.
6. Click **Product line code**, and then click **OK**.
7. Select **Make the filter optional**, and then click **Next**.
8. Next to **Values to display**, click the **ellipsis**.
9. Expand the **Sales and Marketing (query)** folder, expand the **Sales (query)** namespace, and then expand **Products**.
10. Click **Product line**, click **OK**, and then click **Finish**.

The result appears as shown below:



Product line	Product type	Product	Unit cost	Gross margin
<Product line>	<Product type>	<Product>	<Unit cost>	<Gross margin>
	<Product type>	<Product>	<Unit cost>	<Gross margin>
<Product line>	<Product type>	<Product>	<Unit cost>	<Gross margin>
	<Product type>	<Product>	<Unit cost>	<Gross margin>

11. In the **Insertable Objects** pane, click the **Toolbox** tab, and then drag a **Prompt Button** onto the work area to the right of the value prompt.
12. Click the **Prompt Button**, in the **Properties** pane, under **General**, click **Type**, and then select **Finish**.

13. On the toolbar, click **Run Report**.

The report opens in the browser displaying data for all product lines. The report ran because the parameterized filter was defined as optional.

14. In the **Product line** list, click **Golf Equipment**, and then click **Finish**.

Golf Equipment product line information is displayed.

15. Close **IBM Cognos Viewer**.

16. Click the **Finish** prompt button, and then press **Delete**.

17. Click the **Value Prompt**, in the **Properties** pane, under **General**, click **Auto-Submit**, and then change the property to **Yes**.

Task 2. Customize the Prompt.

You want to customize the prompt header to provide instructions on how to use the prompt.

1. With the Value prompt still selected, scroll down to **Prompt Text** in the properties window.
2. Click **Header Text**, and then click the **Ellipses**.
3. Select the **Specified** radio button, and then click on the **Ellipses** to the right of the text box.

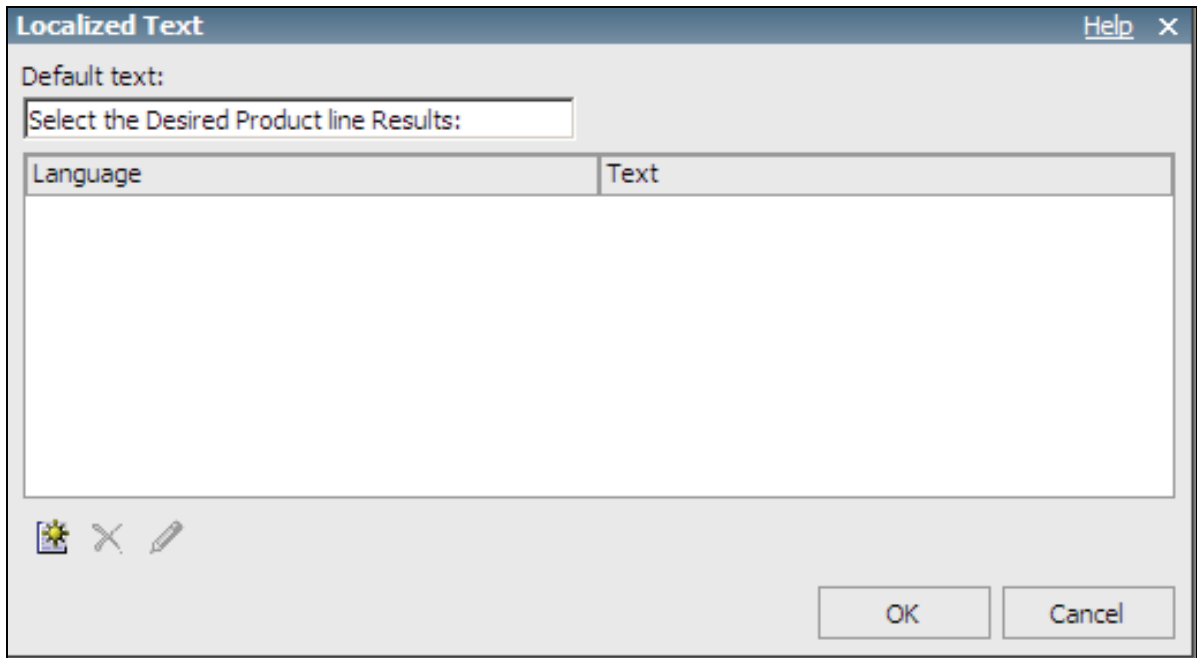
To control the usage of your prompt between required or optional, make the change directly on your filter through your filters Usage property instead of changing this setting on your prompt. The filters Usage property overrides the prompts Required property.


INTERACTION - Text Chat: Ask the students why we are using the Product line code instead of Product? Then discuss advantage of using an indexed query item.

4. Type the following in the **Default text** box:

Select the Desired Product line Results:

The results appear as follows:



5. Click **OK** and **OK** again to close the dialog boxes.
You want to have the value prompt separate from the list. You will add space between the prompt and the list by increasing the top margin of the list.
6. Click the list **Container selector**  in the upper left cell to select the entire list.
7. From the **Properties** pane, under **Box**, double-click the property setting beside **Margin**.
8. Type **20** in the top margin cell and click **OK**.

Step 4; mention that this is where you would add information for localization.

Task 3. Run the report.

1. On the toolbar, click **Run Report**.

The report opens in the browser displaying data for all product lines. The report ran because the parameterized filter was defined as optional.

2. In the drop down list, click **Golf Equipment**.

The results appear as follows:

Select the Desired Product line Results: ▼			
Select the Desired Product line Results:			

Camping Equipment	t	Unit cost	Gross margin
Golf Equipment	en	6.92	42.0381%
Mountaineering Equipment	et	34.41	28.6164%
Outdoor Protection		0.85	73.9413%
Personal Accessories	Cook Set	78.72	30.5998%
	TrailChef Double Flame	75.00	44.4976%
	TrailChef Kettle	5.07	55.7730%
	TrailChef Kitchen Kit	15.78	30.5233%
	TrailChef Single Flame	46.38	26.1900%
	TrailChef Utensils	9.68	46.3449%
	TrailChef Water Bag	2.77	51.7269%

With the Auto-Submit property set to Yes, you can use the Product line list to select which Product line data you want to display without having to click on a button to submit your selection.

3. Close **IBM Cognos Viewer**.

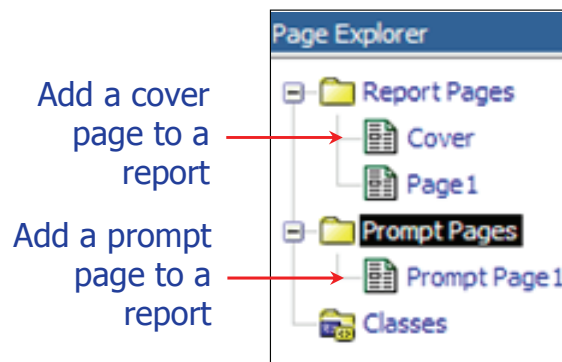
Leave Report Studio open for the next demo.

Results:


You created a report to show cost and gross margin for each product. You added a prompt so that users can view product data within a specified product line.

Add Pages to a Report

- Enhance your report by adding multiple report and prompt pages.

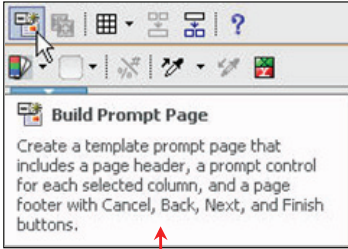


By accessing the Page Explorer on the vertical toolbar, you can navigate between report pages and prompt pages. You can also add or delete report pages and prompt pages by clicking on the Report Pages link or the Prompt Pages link.

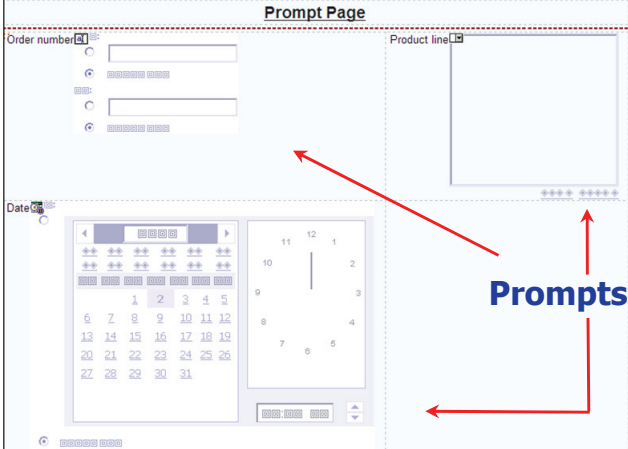
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Create a Prompt Page


- Build a prompt page for selected query items, or create a blank prompt page and add prompts to it.



Automatically
generates a
prompt page



Prompts


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Select one or more items in your report and then click the Build Prompt Page button. Prompts for each item appear in the work area.

You can also create a blank prompt page by adding a new page to the Prompt Pages section in Page Explorer. Once on the new prompt page, you can drag prompt items onto the work area.

Demo 3: Add Select & Search Prompt to a Report

Purpose:

You want to change your current report to allow users to select multiple product lines to show in the report. To do this you must delete the current value prompt and replace it with the Select & Search prompt.

Server:	localhost
User/Password:	brettonf/Education1!
Studio:	Report Studio
Package:	Go Data Warehouse (query)
Report Type:	List
Folder:	Sales and Marketing (query)
Namespace:	Sales (query)

Task 1. Open the report

1. In Report Studio, click **File, Open**, navigate to **Public Folders\B5158\ Module 07_Focus Reports Using Prompts\Demo 3 Start**, and then click **Open**.

2. On the toolbar, click **Run Report**.
3. In the **Product line** list, select **Camping Equipment**.


The results appear as follows:

Product line	Product type	Product	Unit cost	Gross margin
Camping Equipment	Cooking Gear	TrailChef Canteen	6.92	42.0381%
		TrailChef Cook Set	34.41	28.6164%
		TrailChef Cup	0.85	73.9413%
		TrailChef Deluxe Cook Set	78.72	30.5998%
		TrailChef Double Flame	75.00	44.4976%
		TrailChef Kettle	5.07	55.7730%
		TrailChef Kitchen Kit	15.78	30.5233%
		TrailChef Single Flame	46.38	26.1900%
		TrailChef Utensils	9.68	46.3449%
		TrailChef Water Bag	2.77	51.7269%
	Lanterns	EverGlow Butane	40.63	36.9673%
		EverGlow Double	28.75	44.6035%
		EverGlow Kerosene	20.00	34.7953%
		EverGlow Lamp	14.76	42.0829%
		EverGlow Single	17.95	44.3804%
		Firefly 2	16.38	37.6774%
		Firefly 4	17.84	37.7496%
		Firefly Extreme	29.10	43.7189%
		Firefly Lite	6.75	53.2602%
		Firefly Mapreader	7.50	46.3785%

The report includes information on only one product line. You will now add a prompt that will let users search and select one or more product lines.

4. Close **IBM Cognos Viewer**.

Task 2. Add a Select & Search prompt on a Prompt Page.

1. Click the **Value** prompt and delete it.
2. Click **Filters, Edit Filters**.
Notice that the prompt filter remains even when the Value prompt was deleted.
3. Select the filter and delete it, and then click **OK**.
4. Point to **Page Explorer** , and then click **Prompt Pages**.
5. From the **Insertable Objects** pane, drag a **Page** object to the **Prompt Pages** pane.
6. Double-click **Prompt Page1**, and then from the **Toolbox** tab, drag a **Select & Search Prompt** object onto the prompt page.
7. In the **Choose Parameter** dialog box, change the parameter name to **productlines**, and then click **Next**.
8. In the **Create Filter** page, ensure that **Create a parameterized filter** is selected, and then beside **Package item**, click the **ellipsis**.
9. Expand the **Sales and Marketing (query)** folder, **Sales (query)** namespace, **Products** folder, and then **Codes** folder.
10. Click **Product line code**, and then click **OK**.
11. Select **Make the filter optional**, in the **Operator** list, select **in**, and then click **Next**.
12. Next to **Values to display**, click the **ellipsis**.

Task 2, Step 11. You use the operator 'in' to allow for multiple selections of Product Line. If you used the '=' operator, the prompt would allow for only single selection because it is a single selection operator. This would still occur even if the Multi-select property were set to 'Yes'.

INTERACTION - Toolbar Emoticons > Raise Hand: Reiterate to the students the different layers of a prompt and answer any questions on this matter before moving on

13. Expand the **Sales and Marketing (query)** folder, expand the **Sales (query)** namespace, and then expand **Products**.
14. Click **Product line**, click **OK**, and then click **Finish**.
The report appears with the Select and Search prompt on the prompt page.
You use the 'in' operator to allow for multiple selections. If you used the '=' operator, the prompt would allow for only single selection.
15. On the **Toolbox** tab, drag a **Block** to the left of the prompt.
16. On the **Toolbox** tab, drag a **Text Item** onto the block, type **Choose a Product Line:** and then **Bold** the text and make it **14 pt**.

Task 3. Run the report.

1. On the toolbar, click **Run Report**, and then click **Finish**
You can navigate to view product line data on other pages. The report ran because you made the prompt optional. The name of the product line you want to search for contains the key word “Equipment”.
2. Click the **Run** button in the upper right-hand corner to rerun the report
3. In the **Keywords** box, type **Equipment**, and then click **Options**.
A list of search options appears that you can use to refine your search.
4. Ensure that **Contains any of these keywords** is selected, and then click **Search**.
All product lines with “Equipment” in the name appear in the Results box at the bottom of the report.
5. In the **Results** box, click **Camping Equipment** and then Ctrl-click **Mountaineering Equipment**
Notice that you can select more than one value. This indicates that the prompt allows multiple selections. This is the default behavior for a Select & Search prompt.
6. Click **Insert**.

7. Repeat steps 2-4 for the key word **Accessories** and insert **Personal Accessories** into the **Choice** list, then click **Finish**.

A section of the results appear as follows:

Product line	Product type	Product	Unit cost	Gross margin
Camping Equipment	Cooking Gear	TrailChef Canteen	6.92	42.0381%
		TrailChef Cook Set	34.41	28.6164%
		TrailChef Cup	0.85	73.9413%
		TrailChef Deluxe Cook Set	78.72	30.5998%
		TrailChef Double Flame	75.00	44.4976%
		TrailChef Kettle	5.07	55.7730%
		TrailChef Kitchen Kit	15.78	30.5233%
		TrailChef Single Flame	46.38	26.1900%
		TrailChef Utensils	9.68	46.3449%
		TrailChef Water Bag	2.77	51.7269%
	Lanterns	EverGlow Butane	40.63	36.9673%
		EverGlow Double	28.75	44.6035%
		EverGlow Kerosene	20.00	34.7953%
		EverGlow Lamp	14.76	42.0829%
		EverGlow Single	17.95	44.3804%
		Firefly 2	16.38	37.6774%
		Firefly 4	17.84	37.7496%
		Firefly Extreme	29.10	43.7189%
		Firefly Lite	6.75	53.2602%
		Firefly Mapreader	7.50	46.3785%

The report runs and is now filtered to display only the data associated with the product lines you selected based on your search.

8. Close **IBM Cognos Viewer**.

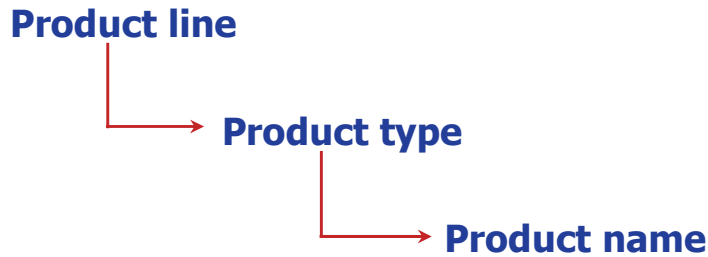
Leave Report Studio open for the next demo.

Results:

You created a report that shows sales target versus revenue by sales rep and the country in which they work. You created a prompt page and with a Select & Search prompt that lets users search for and select from a list of sales reps based on keyword options.

Create a Cascading Prompt

- Use values from a previous prompt to filter the values in the current prompt or picklist.



In the slide example, the selection the user makes for Product line determines what is populated in the Product type prompt. The selection made for Product type determines what is populated in the Product name prompt.

When you create a series of prompts that have a hierarchical relationship, you can define them as cascading, so that a prompt selection is determined by the user's choice in the previous prompt.


Demo 4: Create a Cascading Prompt

Purpose:

You want to create a report that lets you analyze product returns. You want the report to enable you to focus on specific product lines and product types within those product lines. In particular, you want to focus on tent and lantern returns for all order methods.

Server: localhost
 User/Password: brettanf/Education1!
 Studio: Report Studio
 Package: Go Data Warehouse (query)
 Report Type: List
 Folder: Sales and Marketing (query)
 Namespace: Sales (query)

Task 1. Open the report and create a prompt page with a cascading prompt.

1. In **Report Studio**, click **File**, **Open**, and navigate to **Public Folders\B5158\Module 07_Focus Reports Using Prompts\Demo 4 Start**, and then click **Open**.
2. In the work area, click **Product line**, and then Ctrl-click **Product type**, and **Order method type**.
3. Click **Build Prompt Page** .
4. In the work area, click the **Product type** value prompt.
5. In the **Properties** pane, under **General**, double-click **Cascade Source**, select **Product line** from the drop down menu, and then click **OK**.

The Product types available to choose from will depend on the Product line selected.

Task 2. Set behavior patterns for prompts.

1. In the work area, click the **Product line** value prompt.
2. In the **Properties** pane, under **General**, in the **Multi-Select** list, click **No**.
3. Under **General**, in the **Auto-Submit** list, click **Yes**.

The user can only select one product line, and the selection will be submitted automatically.

4. In the work area, click the **Product type** value prompt.
5. In the **Properties** pane, ensure that **Multi-Select** is **Yes**, and **Auto-Submit** is **No**.
6. In the work area, click the **Order method type** value prompt.
7. In the **Properties** pane, under **General**, in the **Multi-Select** list, click **No**.

The user can select multiple product types, but the selection will not submit automatically. Once all of the selections for the prompts are complete, the user must submit the request by clicking Finish.

Task 3. Create a static value to select all Order method type values.

1. In the work area, click the **Order method type** value prompt.
2. In the **Properties** pane, under **Data**, beside **Static Choices**, click the **ellipsis**, and then click **Add**.

The value entered for static choices is case sensitive and should be entered the exact same way in your filter expression.

3. Type **ALL** for both the **Use** and **Display** values and click **OK** twice to close both dialog boxes.

You now need to specify what values to return when ALL is selected in the Order method prompt.

4. Point to **Page Explorer**, and then under **Report Pages**, click **Page1**.
5. Click anywhere in the list, and then click **Filters**, **Edit Filters**.
6. Click the **Order method** filter, and then click **Edit**.
7. Replace the existing expression with the following:
if (?Order method type?='ALL') then ([Order method type]=[Order method type]) else([Sales (query)].[Order method].[Order method type] = ?Order method type?)
8. Validate the expression, select any value for each of the three prompts, and then click **OK**.
9. Click **OK** twice to close both dialog boxes.

Task 3, Step 7: It is important that the Parameter name matches the Query Item name for the cascade to work

Task 4. Run the report and view details for specific products.

1. On the toolbar, click **Run Report**.

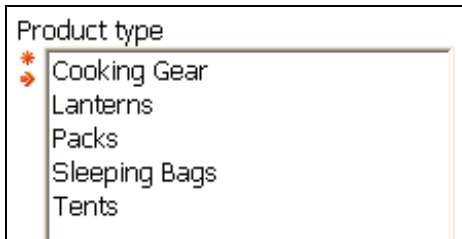
The results appear as follows:



The Prompt Page appears prompting for a Product line. The star icon indicates that this selection is mandatory, and the arrow indicates that a selection has not yet been made.

2. In the **Product line** prompt, click **Camping Equipment**.

The results appear as follows:



3. Under **Product type**, click **Lanterns** and then Ctrl-click **Tents**.

4. In the **Order method** prompt, click **ALL**, and then click **Finish**.

The report appears showing returns for Lanterns and Tents only for all order methods.

The results appear as follows:

Product line	Product type	Order method type	Return quantity
Camping Equipment	Lanterns	E-mail	1,527
		Fax	1,089
		Mail	335
		Sales visit	7,408
		Special	169
		Telephone	4,902
		Web	50,160
	Lanterns - Total		65,590
	Tents	E-mail	648
		Fax	216
		Mail	240
		Sales visit	5,977
		Telephone	4,631
		Web	27,794
	Tents - Total		39,506
Camping Equipment - Total			105,096
Overall - Total			105,096

5. Close **IBM Cognos Viewer**.

Leave Report Studio open for the workshop.

Results:

You created a report that lets you analyze product returns. The report enabled users to focus on specific product lines and product types within those product lines. In particular, you focused on tent and lantern returns for all order methods.

Summary

- At the end of this course, you should be able to:
 - identify various prompt types
 - use parameters and prompts to focus data
 - search for prompt types
 - navigate between pages

INTERACTION - Check Sticker: Check mark each objective as it is summarized.

Workshop 1: Focus a Report Using Value Prompts (Optional)

You want to create a report with revenue data by product line. You will create two prompts for users to choose the region(s) and year that they want in the report. You want the prompts to appear on a separate prompt page.

To accomplish this:

- Navigate to Public Folders\B5158\Module 07_Focus Reports Using Prompts.
- Open Workshop 1 Start.
- Create a prompt page with two value prompts:
 - Employee by region → Branch region
 - Time dimension → Year
- Create a cover page.
- Add a title and company logo to the cover page.

For more detailed information outlined as tasks, see the Task Table section.

For the final query results, see the Workshop Results section that follows the Task Table section.

Workshop 1: Task Table

Task 1: Open the report, create a prompt and add the Region prompt.	
Where to Work	Hints
Toolbar File > Open	<ul style="list-style-type: none"> • Navigate to Public Folders\B5158\ Module 07_Focus Reports Using Prompts. • Open Workshop 1 Start File.
Page Explorer, Prompt pages/Toolbox tab	<ul style="list-style-type: none"> • Add a Value Prompt to Prompt Page 1. Parameter name = RegionPrompt.
Wizard	<ul style="list-style-type: none"> • Package item - Branch region from Sales and Marketing (query) > Sales (query) > Employee by region Operator - in
Toolbox tab	<ul style="list-style-type: none"> • Drag a Text Item to the left of the prompt, type Choose region(s), make it 14 pt.
Task 2: Add a Year prompt.	
Where to Work	Hints
Toolbox tab	<ul style="list-style-type: none"> • Add Value Prompt. Parameter name = YearPrompt
Wizard	<ul style="list-style-type: none"> • Package item – Year Operator - =
Toolbox	<ul style="list-style-type: none"> • Drag a Block to the right of the first prompt. • Drag a Text Item to the new block, type Choose year, make it 14 pt.
Properties - Value prompt	<ul style="list-style-type: none"> • Select UI - Radio button group.

Task 3: Create a cover page (Optional).	
Where to Work	Hints
Page Explorer -Report Pages	<ul style="list-style-type: none"> • Add a cover page above Page1.
	<ul style="list-style-type: none"> • Rename Page2 to CoverPage
CoverPage	<ul style="list-style-type: none"> • Add a table to the page.
Task 4: Add a text item and an image to the cover page (Optional).	
Where to Work	Hints
CoverPage	<ul style="list-style-type: none"> • Add report title.
	<ul style="list-style-type: none"> • Add company logo.
Task 5: Run the report.	
Where to Work	Hints
Toolbar	<ul style="list-style-type: none"> • Run Report.
IBM Cognos Viewer, Prompt Page	<ul style="list-style-type: none"> • Choose Asia Pacific, Americas and 2007

If you need more information to complete a task, see the Step-by-Step instructions at the end of the Workshop.

Workshop 1: Workshop Results

When you run the report, the prompt page appears as follows:

Choose region(s):*

Americas
Asia Pacific
Central Europe
Northern Europe
Southern Europe

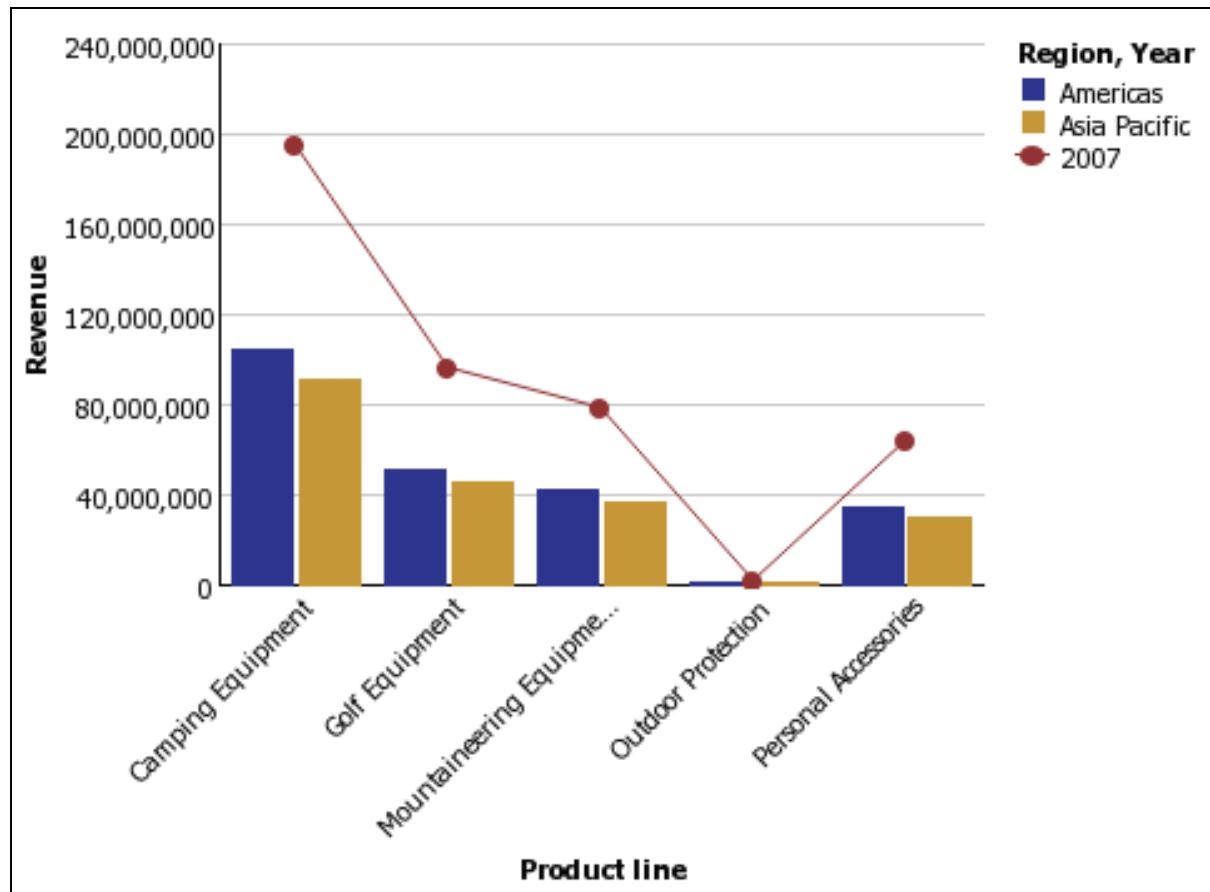
[Select all](#) [Deselect all](#)

Choose year:*

☐ 2004
☐ 2005
☐ 2006
☒ 2007

Workshop 1: Workshop Results

When you finish your prompt selections, the results appear as follows:



Workshop 1: Step-by-Step Instructions

Server: localhost
User/Password: brettonf/Education1!
Studio: Report Studio
Package: Go Data Warehouse (query)
Report Type: Chart
Folder: Sales and Marketing (query)
Namespace: Sales (query)

Task 1. Open the report, create a prompt page and add the Region prompt.

1. In **Report Studio**, click **File**, **Open**, and navigate to **Public Folders\B5158\ Module 07_Focus Reports Using Prompts\Workshop 1 Start**, and then click **Open**.
2. Point to **Page Explorer**, and then click **Prompt Pages**.
3. From the **Insertable Objects** pane, drag a **Page** object to the **Prompt Pages** pane.
4. Double-click **Prompt Page1**, and then from the **Toolbox** tab, drag a **Value Prompt** object to the prompt page.
5. In the **Prompt Wizard - Value Prompt** box, change the parameter name to **RegionPrompt** and then click **Next**.
6. In the **Create Filter** box, beside **Package** item, click the **ellipsis**.
7. Expand the **Sales and Marketing (query) > Sales (query) > Employee by region**.

8. Click **Branch region**, and then click **OK**.
9. In the **Operator** list, click **in**.
10. Click **Next**, and then click **Finish**.
11. In the **Insertable Objects** pane, on the **Toolbox** tab, drag a **Text Item** to the left of the value prompt, type **Choose region(s):** and then click **OK**.
12. Click the text item and make it **14 pt**.

Task 2. Add a Year prompt.

1. In the **Insertable Objects** pane, on the **Toolbox** tab, drag a **Block** to the right of the new prompt.
2. On the **Toolbox** tab, drag a **Value Prompt** object into the block.
3. In the **Prompt Wizard - Value Prompt** box, change the parameter name to **YearPrompt** and then click **Next**.
4. In the **Create Filter** page, beside **Package item**, click the **ellipsis**.
5. Expand **Sales and Marketing (query) > Sales (query) > Time**.
6. Click **Year**, and then click **OK**.
7. Click **Next**, click **Next** again, and then click **Finish**.
8. From the **Toolbox** tab, drag a **Block** to the left of the **YearPrompt** prompt.
9. From the **Toolbox** tab, drag a **Text Item** into the block, type **Choose year:** and then click **OK**.
10. Click the text item and make it **14 pt**.
11. Click the bottom prompt, and then in the **Properties** pane, under **General**, click **Select UI**, and then click **Radio button group**.

Task 3. (Optional) Create a cover page.

As an additional challenge, create a cover page for your report.

1. On the **Explorer** bar, point to **Page Explorer**, and then click **Report Pages**.
2. From the **Insertable Objects** pane, drag a **Page** to the **Report Pages** section above **Page1**.
3. Under **Properties**, in the **Name** box, type **CoverPage**, and then press **Enter**.
4. Double-click **CoverPage** to open it.
5. In the **Insertable Objects** pane, on the **Toolbox** tab, drag a **Table** onto the work area with **2** columns and **1** row, and then click **OK**.
6. Click the **Container selector** in the upper left cell to select the entire table.
7. On the toolbar, click **Center**.
8. Click anywhere on the page below the table, and then, on the toolbar, click **Middle**.

Task 4. (Optional) Add a text item and image to the cover page.

This task covers adding a title and image to the cover page created in Task 3.

1. From the **Insertable Objects** pane, drag a **Text Item** into the left table cell.
2. In the **Text** dialog box, type **GO Data Warehouse - Revenue Generated** and then click **OK**.
3. Click the text item, and then change the font to **Arial Black, 16 pt**.

4. From the **Insertable Objects** pane, on the **Toolbox** tab, drag an **Image** into the right table cell.
5. Click the **image** to select it, and then in the **Properties** pane, double-click the cell beside **URL**, and then click **Browse**.
6. Click **cover2.jpg**, and then click **OK** twice to close each dialog box.
7. In the **Properties** pane, under **Positioning**, double-click the cell next to the **Size & Overflow** property.
8. Set the **Height** to **75** pixels and the **Width** to **150** pixels, and then click **OK**.

Task 5. Run the report.

1. On the toolbar, click **Run Report**.
2. In the **Regions** list, click **Americas**, and then Ctrl-click **Asia Pacific**.
3. In the **Year** list, click **2007**, and then click **Finish**.

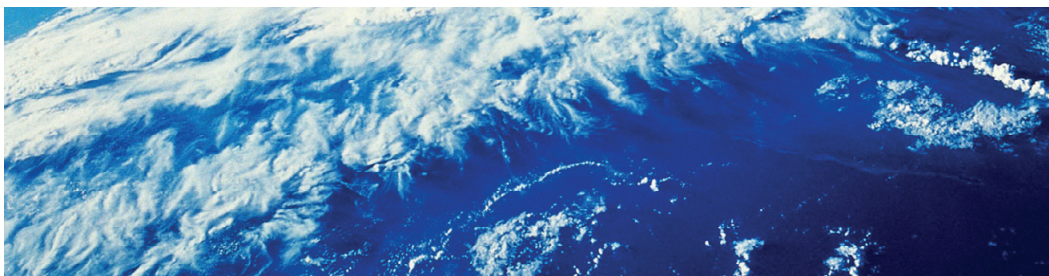
The next page you see is the cover page.

4. Click on **Page Down** link to go to the next page.
5. Close **IBM Cognos Viewer** and close **Report Studio**.



Extend Reports Using Calculations

IBM Cognos BI



Business Analytics

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Objectives

- At the end of this course, you should be able to:
 - create calculations based on data in the data source
 - add run-time information to the reports
 - create expressions using functions


If you intend to teach this module, students should be familiar with:

- Report Studio
- List reports
- Crosstab reports
- Filters
- Prompts

Suggested modules to reference:

- Introduction to the Reporting Application
- Create List Reports
- Create Crosstab Reports
- Focus Reports Using Filters
- Focus Reports Using Prompts

INTERACTION - Star Sticker: Use the star sticker to highlight each objective as it is introduced.

Business Analytics 

Derive Additional Information from the Data Source

- Create calculated columns based on existing items in the model using query calculations. **Query Calculations**


Employee name	Revenue	Sales target	Variance	Percent of Goal
Australia				
Alice Walter	19,040,701.32	16,834,700	2,206,001.32	113%
Dave Smythe	16,652,383.41	15,084,300	1,568,083.41	110%

Expression Definition

[Revenue]-[Sales target]

Expression Definition

[Revenue]/[Sales target]


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Calculations can be added to a list, crosstab, or chart report, as well as to the body, headers, and footers.

Add Run-time Information to Your Report

- Create a layout calculation to add information to your report.

Layout calculation indicates that US English is used in this report

Sales Target (locale: en-us)

Employee name	Revenue	Sales target	Variance	Percent of Goal
Australia				
Alice Walter	19,040,701.32	16,834,700	2,206,001.32	113%
Dave Smythe	16,652,383.41	15,084,300	1,568,083.41	110%
Donald Neely	1,089,148.84	997,200	91,948.84	109%
Donald Ward	19,815,234.63	18,036,200	1,779,034.63	110%

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Layout calculations can include run-time information such as current date, current time, and user name.

Adding calculated columns can help provide further insight into your data.

You can create a query or layout calculation by dragging a Calculation object to any part of your report and then creating the expression in the Expression Editor.

Create a calculated column to make a report more meaningful by deriving additional information from the data source.

For example, you create an invoice report, and you want to see the total sale amount for each product ordered. Create a calculated column that multiplies the product price by the quantity ordered.

If an expression is used in multiple reports, or by different report authors, ask your modeler to create the expression as a standalone object in the model and include it in the relevant package.

To build the expression use the:

- Source tab to find all query items available from the package.
- Data Items tab to find the query items currently found in your report.
- Functions tab to find operators, summaries, constants, and constructs to create the expression you want to display your customized data.
- Parameters tab to find query items used for prompts and parameters within the report.

INTERACTION - Microphone: Reinforce that calculations extend date by using existing Query Items to create calculations. Ask students to provide examples from their data of calculated columns

Add Date/Time Functions to Your Report

- Use date and time functions in calculations and filters to query on specific dates and times in your report.

Expression Definition:

[Date] >= _first_of_month(current_date)

← **Current_date returns today's date.**

↑ **_first_of_month() function filters on return dates greater than or equal to the first of the current month.**

If current_date is October 15, 2008, then the filter would return data for all dates starting at, and greater than October 1st 2008.

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Date/Time functions can be used to build dates, modify existing dates or to filter the report for specific dates.

A useful date/time function is the `extract()` function which returns an integer representing the value of datepart (year, month, day, hour, minute, second) in your datetime expression.

Date/Time functions can be found under the Business Date/Time Functions folder, Vendor Specific Functions folder or the Common Functions folder. If you are going to use vendor specific functions, ensure that they are specific to the database that is currently being queried.

Not all data sources support functions the same way. The data modeler can set a quality of service indicator (little icon appearing beside some functions) on functions to give a visual clue about the behavior of the functions. Report authors can use the quality of service indicators to determine which functions to use in a report. The quality of service indicators are:

- not available (X)** -This function is not available for any data sources in the package
- limited availability (!!)** -The function is not available for some data sources in the package
- poor performance (!)** -The function is available for all data sources in the package but may have poor performance in some data sources
- unconstrained** (no symbol) -The function is available for all data sources

Add String Functions to Your Report

- Use string functions in calculations and filters in your report to manipulate text data.

Expression Definition:
`trim(TRAILING ' ',[Product line])`

Trim() function being used to remove spaces from the end of each product line.

String functions are used to manipulate text.

Some examples of string functions include

- `substring()` function to return part of a string.
- `trim()` function removes specific characters from the beginning or end of a specific text data item.
- `upper()` function changes the text returned to be in uppercase.
- `lower()` function changes the text returned to be in lowercase

String functions can be found under the Common Functions folder, or Vendor Specific Functions folder. For the above slide, if a user entered 'Golf Equipment '(with a space at the end) into the database, the report author would get unexpected results if they queried the database and was doing a comparison against 'Golf Equipment' (without a space at the end). This is a real world example where the `trim()` function should be used to remove trailing spaces before doing a comparison.

Demo 1: Add Calculations to a Report

Purpose:

You are asked to create a report that will return revenue and planned revenue for product lines for January 2004. In addition to looking at actual revenue versus planned revenue, you want to see a percentage for how much of the planned revenue was met. The report should also display the user who is currently logged in and running the report.

Server: localhost
 User/Password: brettonf/Education1!
 Studio: Report Studio
 Package: Go Data Warehouse (query)
 Report Type: List
 Folder: Sales and Marketing (query)

Task 1. Open the report and add a calculated column for percent of goal.

1. In **Report Studio**, click **File**, **Open**, and navigate to **Public Folders\B5158\Module 08_Extend Reports Using Calculations\Demo 1 Start**, and then click **Open**.
2. In the **Insertable Objects** pane, click the **Toolbox** tab, and then drag a **Query Calculation** as the last column.
 The Create Calculation dialog box appears.
3. In the **Name** box, type **Percent of Goal** and then click **OK**.
4. In the **Expression Definition** pane, type **[Revenue]/[Planned revenue]** and then validate the expression and click **OK**.

Note: You can retrieve Revenue and Planned revenue from the Data Items tab.
 This column will show the percentage of revenue achieved for each product line on each day.

Task 2. Add a detail filter to filter dates.

1. On the toolbar, click **Filters**, **Edit Filters**, click **Add**, click **Advanced**, and then **OK**.
2. In the **Expression Definition** box, type the following expression:

[Date] between _first_of_month(2004-01-20) and _last_of_month(2004-01-20)

This filter will return dates between January 1 2004 and January 31 2004. The `_first_of_month()` function returns the first day of the month in the date expression, while the `_last_of_month()` function returns the last day of the month in the date expression. You can use any date for the expression as long as it's in the proper format and it contains data. Make sure that there is a space between each function.

3. Validate the expression and then click **OK** twice to close both dialog boxes.

Task 3. Format the data in the list.

1. In the work area, click the **Date** column.
2. From the toolbar, click **Sort**, and then click **Ascending**.
3. Click the **Percent of Goal** column.
4. In the **Properties** pane, under **Data**, double-click **Data Format**.
5. In the **Format type** list, click **Percent**, in the **Percentage Symbol** cell, click the % sign, and then click **OK**.

Task 4. Add run-time information to the report.

You want to display the name of the user running the report under the title of the report.

1. From the **Toolbox** tab, drag a **Text item** under the block in the header, type **Report run by:** press the spacebar, and then click **OK**.
2. From the **Toolbox** tab, drag a **Query Calculation** to the right of the text item.
3. In the **Name** box, type **UserName** and then click **OK**.
4. In the **Expression Definition** pane, type the following:
#sq(\$account.defaultName)#
5. Validate the expression and then click **OK**.
6. Click **OK** to the Singleton message.
7. Double-click the report title and type: **Sales Figures for January 2004**.
8. Click the header block and then click **Left**.

Task 4, Step 4. The `account.defaultName` function is a session parameter. It is not found in the folders in the function tab. It is available in the functions tab within Framework Manager and is discussed in the Framework Manager documentation.

Task 4, Step 6. When you add a Query Calculation to the page, a Singleton object is automatically created as the container for the Query Calculation. Singletons are discussed further in *IBM Cognos BI Report Studio: Author Professional Reports Advanced (V10.1)*. (sq) = Single quotes. #'s indicate a macro statement.

Task 5. Run the report.

1. On the toolbar, click **Run Report**.

A section of the results appear as follows:

Sales Figures for January 2004				
Report run by: Frank Bretton				
Date	Product line	Revenue	Planned revenue	Percent of Goal
Jan 12, 2004	Camping Equipment	20,217,372.98	21,714,739.59	93%
Jan 12, 2004	Golf Equipment	9,141,599.89	9,815,894.17	93%
Jan 12, 2004	Outdoor Protection	2,263,380.47	2,393,032.12	95%
Jan 12, 2004	Personal Accessories	7,414,443.06	7,797,859.04	95%
Jan 13, 2004	Camping Equipment	5,000,710.6	5,350,515.31	93%
Jan 13, 2004	Golf Equipment	2,536,524.65	2,723,837.61	93%
Jan 13, 2004	Outdoor Protection	474,025.75	496,960.85	95%
Jan 13, 2004	Personal Accessories	3,477,197.59	3,586,395.95	97%
Jan 14, 2004	Camping Equipment	633,110.2	674,140.61	94%

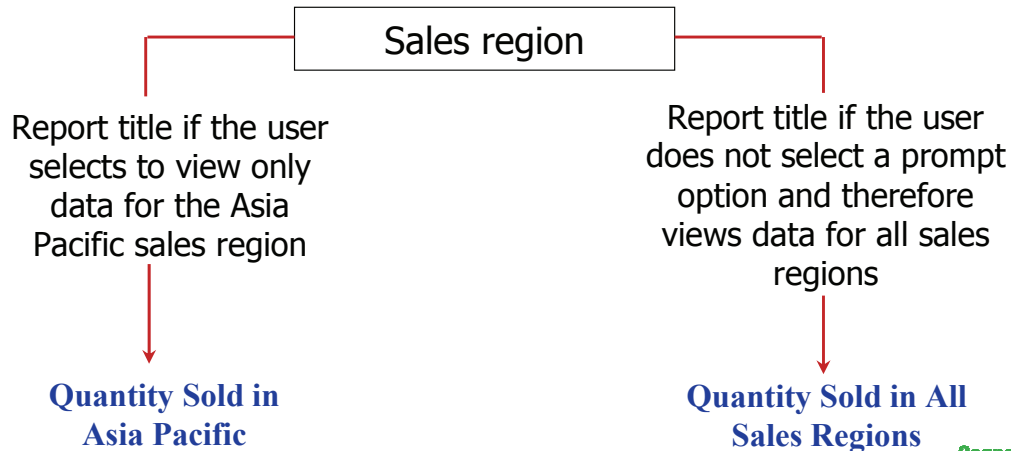
2. Click **Page Down** to see more pages in your report.
3. Close **IBM Cognos Viewer**.

Results:

You created a report to show revenue and planned revenue and the percentage of planned revenue that was achieved for product lines for January 2004. You also included the name of the user currently logged in so it displays each time the report is run.

Display Prompt Selections in Report Titles

- You can display information in the report title that describes the prompt option a user selects.



To display the selected prompt option in the report title, add a layout calculation to the report title that returns a different value depending on the prompt option a user selects.

Demo 2: Display Prompt Selections in the Report Title

Purpose:

You have been asked for a report that displays the quantity of products sold for each order year. You also need to display all product lines in uppercase. The report should contain an optional prompt that lets users view data by sales region. To add context to the report, the report title should indicate which sales region users select in the prompt. If users do not select a prompt option, this should also be indicated in the report title. You will use a layout calculation to display the report title.

Server:	localhost
User/Password:	brettonf/Education1!
Studio:	Report Studio
Package:	Go Data Warehouse (query)
Report Type:	Crosstab
Folder:	Sales and Marketing (query)
Namespace:	Sales (query)

Task 1. Open the report and edit the expression to return product line values in uppercase.

1. In **Report Studio**, click **File, Open**, and navigate to **Public Folders\B5159\Module 08_Extend Reports Using Calculations\Demo 2 Start**, and then click **Open**.
2. In the crosstab, double-click **Product line**.

3. Edit the expression to use the **upper()** function.

The expression should appear as follows:

upper([Sales (query)].[Products].[Product line])

4. Click **OK**.

You will add an optional filter containing a parameter that lets users specify the sales region for which they want to view data.

Task 2. Add an optional parameter.

1. On the toolbar, click **Filters**, **Edit Filters**, ensure the **Detail Filters** tab is selected, click **Add**, click **Advanced**, and then click **OK**.
2. From the **Available Components** pane, expand the **Sales and Marketing** folder, expand **Sales (query)**, expand **Employee by region**, and then drag **Branch region** to the **Expression Definition** pane.
3. At the end of the expression, type **=?Region?**.
4. Validate the detail filter expression, in the **Region** list, click **Americas**, click **OK**, and then **OK** again.
5. In the **Filters** dialog box, with the filter you just added selected, click **Optional**, and then click **OK**.

You will run this report to test the prompt.

6. On the toolbar, click **Run Report**.

INTERACTION - Toolbar Emoticons > Raise Hand: Task 1, Step 3, Inquire of the participants as to what results the **upper ()** functions will provide.

7. In the **Region** prompt, click **Asia Pacific**, and then click **OK**.

The results appear as follows:

Quantity		2004	2005	2006	2007
PERSONAL ACCESSORIES	Binoculars	43,340	45,626	62,144	49,788
	Eyewear	22,252	50,760	79,760	69,607
	Knives	396,185	275,620	388,653	307,093
	Navigation	117,074	84,358	107,223	113,107
	Watches	33,936	46,015	60,211	44,995
	PERSONAL ACCESSORIES	612,787	502,379	697,991	584,590
MOUNTAINEERING EQUIPMENT	Climbing Accessories		410,155	526,482	573,585
	Rope		30,530	45,981	38,024
	Safety		85,114	104,518	87,855
	Tools		187,255	245,019	236,781
	MOUNTAINEERING EQUIPMENT		713,054	922,000	936,245
CAMPING EQUIPMENT	Cooking Gear	762,065	970,654	1,204,182	734,361
	Lanterns	302,228	299,709	398,988	307,474
	Packs	145,530	178,679	211,237	179,028
	Sleeping Bags	175,095	216,734	262,494	176,464
	Tents	174,294	214,882	280,521	171,512
	CAMPING EQUIPMENT	1,559,212	1,880,658	2,357,422	1,568,839
OUTDOOR PROTECTION	First Aid	118,131	49,723	34,948	15,307
	Insect Repellents	765,321	487,509	204,481	86,726
	Sunscreen	584,942	519,475	170,625	77,772

The report displays data only for the Asia Pacific region.

Notice that the Product line is all uppercase.

8. Close **IBM Cognos Viewer**.

Task 3. Display the parameter value in the report title.

To give this report some context, you want the region selected to appear in the report title. If no region is selected, you want the report title to indicate that the data displayed represents quantity sold in all regions.

1. On the report page, double-click the report title text, type **Quantity Sold in** press the spacebar, and then click **OK**.
2. Select the title block (not the title text), and from the toolbar, click **Left**.

You will create a layout calculation to display the prompt option selected in the report title.

3. In the **Insertable Objects** pane, click the **Toolbox** tab, and then drag a **Layout Calculation** object to the end of the report title.

You will create an expression that specifies that if a parameter value is selected, the layout calculation should show the display value for the selected parameter value. Otherwise, the layout calculation should show All Regions.

4. In the **Expression Definition** pane, type **if(**
5. In the **Available Components** pane, click the **Parameters** tab, drag the **Region** parameter to the end of the expression definition, and then at the end of the expression, type **<> ' ') then (**
6. From the **Available Components** pane, drag the **Region** parameter to the end of the expression, and then at the end of the expression, type **) else 'All Regions'**.


The final expression appears as shown below:

```
if(ParamDisplayValue('Region')<> ' ' ) then  
(ParamDisplayValue('Region')) else 'All Regions'
```

The empty quotes represent no display value. This will be the case when the prompt is optional and the user does not select anything.

7. Validate the expression, and then click **OK** to close the dialog box.

You will format the layout calculation text to look like the report title text.

8. Click the report title, and then on the toolbar, click **Pick up Style** .

9. Click the layout calculation, and then on the toolbar, click **Apply Style** .

Task 4. Test the prompt.

1. On the toolbar, click **Run Report**.
2. On the prompt page, in **Provide a value**, click **Branch region**, and then click **OK** to run the report without selecting a prompt option.

A section of the results appear as follows:

Quantity		2004	2005	2006	2007
PERSONAL ACCESSORIES	Binoculars	242,233	260,220	328,175	244,459
	Eyewear	4,066,410	5,180,407	6,354,258	4,710,321
	Knives	1,727,090	1,639,228	2,183,581	1,679,415
	Navigation	495,710	404,836	574,517	517,650
	Watches	1,040,896	1,082,666	1,265,484	910,149
	PERSONAL ACCESSORIES	7,572,339	8,567,357	10,706,015	8,061,994
MOUNTAINEERING EQUIPMENT	Climbing Accessories		1,571,481	2,101,101	2,177,669
	Rope		105,488	169,221	143,851
	Safety		311,141	437,813	386,240
	Tools		656,603	992,127	847,356
	MOUNTAINEERING EQUIPMENT		2,644,713	3,700,262	3,555,116
CAMPING EQUIPMENT	Cooking Gear	2,905,120	3,501,329	4,060,635	2,933,267
	Lanterns	1,110,177	1,112,798	1,490,611	1,113,169
	Packs	545,903	664,146	865,940	680,551
	Sleeping Bags	668,519	790,857	983,014	710,828
	Tents	665,334	834,634	998,956	665,361
	CAMPING EQUIPMENT	5,895,053	6,903,764	8,399,156	6,103,176
OUTDOOR PROTECTION	First Aid	450,978	186,317	133,692	58,367
	Insect Repellents	2,864,588	1,806,770	808,715	320,891
	Sunscreen	2,298,790	2,117,971	657,178	310,188

The report title explains that this report contains data about quantity sold in all regions.

3. In **IBM Cognos Viewer**, click **Run** to run the report again, and in the **Provide a value** prompt, click **Asia Pacific**, and then click **OK**.

A section of the results appear as follows:

Quantity		2004	2005	2006	2007
PERSONAL ACCESSORIES	Binoculars	43,340	45,626	62,144	49,788
	Eyewear	22,252	50,760	79,760	69,607
	Knives	396,185	275,620	388,653	307,093
	Navigation	117,074	84,358	107,223	113,107
	Watches	33,936	46,015	60,211	44,995
	PERSONAL ACCESSORIES	612,787	502,379	697,991	584,590
MOUNTAINEERING EQUIPMENT	Climbing Accessories		410,155	526,482	573,585
	Rope		30,530	45,981	38,024
	Safety		85,114	104,518	87,855
	Tools		187,255	245,019	236,781
	MOUNTAINEERING EQUIPMENT		713,054	922,000	936,245
CAMPING EQUIPMENT	Cooking Gear	762,065	970,654	1,204,182	734,361
	Lanterns	302,228	299,709	398,988	307,474
	Packs	145,530	178,679	211,237	179,028
	Sleeping Bags	175,095	216,734	262,494	176,464
	Tents	174,294	214,882	280,521	171,512
	CAMPING EQUIPMENT	1,559,212	1,880,658	2,357,422	1,568,839
OUTDOOR PROTECTION	First Aid	118,131	49,723	34,948	15,307
	Insect Repellents	765,321	487,509	204,481	86,726
	Sunscreen	584,942	519,475	170,625	77,772

The report title explains that this report contains data about quantity sold in Asia Pacific.

4. Close **IBM Cognos Viewer**.

Leave Report Studio open for the next demo.

Results:

You created a report that displays the quantity sold of your products for each order year. You also displayed all product lines in uppercase. Users have the option to select a region for which to view data. To add context to the report, the user's prompt selection appears in the report title, by using a layout calculation.

Demo 3: Create a Report that Breaks Out Revenue Contribution by Product line.

Purpose:

You have been asked to create a report that shows revenue for product line and product type. You also have to change the names of the product lines that contain the word Equipment to say EQ. instead. In addition, this report will have to show how much each product line and product type contributed to the overall revenue. You are only interested in 2006 revenue.

Server:	localhost
User/Password:	brettonf/Education1!
Studio:	Report Studio
Package:	Go Data Warehouse (query)
Report Type:	List
Folder:	Sales and Marketing (query)
Namespace:	Sales (query)

Task 1. Open the report

1. In **Report Studio**, click **File**, **Open**, and navigate to **Public Folders\B5159\Module 08_Extend Reports Using Calculations\Demo 3 Start**, and then click **Open**.
2. In the **Insertable Objects** pane, click the **Toolbox** tab, and then drag a **Query Calculation** to the right of the **Product line** column.
The Create Calculation dialog box appears.
3. In the **Name** box, type **Updated Product line** and then click **OK**.

4. Create the following expression in the **Expression Definition** pane:
if([Product line] contains 'Equipment') then (substring([Product line] ,1, position('Equipment',[Product line])) || 'Q.') else([Product line])
5. Validate the expression and then click **OK**.
6. Click the **Product line** column and click **Cut**.
7. Click the **Updated Product line** column, click **Group/Ungroup**, click **Headers & Footers** from the tool bar, and then click **Create Header**.
8. With the **Updated Product line** column selected, press **Delete**.
9. Click the **Revenue** column, on the toolbar, click **Summarize**, and then click **Total**.
10. On the toolbar, click **Filters**, **Edit Filters**, click **Add**, click **Advanced**, and then click **OK**.
11. Add a detail filter by creating the following expression:
[Sales (query)].[Time].[Year]=2006
12. Validate the expression and then click **OK** and then **OK** again.
13. Double-click the report title in the page header, type **Revenue Contribution by Product Line and Product Type** and then click **OK**.

Task 2. Add a calculated column with a query calculation.

1. In the **Insertable Objects** pane, click the **Toolbox** tab, and then drag a **Query Calculation** to the right of the last column.
2. In the **Name** box, type **% of Total Revenue** and then click **OK**.

The expression in Task 1 Step 5 does a comparison to see if the values returned by Product line contains the word 'Equipment'. If they do, then it will take the exact character location of the starting point of 'Equipment' returned by the position() function, and return the substring of the value from position one of the original value to the starting of the word 'Equipment'. Simply, this cuts the word 'equipment' from the value returned. Then we are concatenating 'Q.' to the end of the substring returned using the '||' operator.

If the word 'Equipment' is not found, the original Product line value is returned.

INTERACTION - Toolbar Emoticons > Raise Hand: Ask the students to explain what the calculation is actually returning in Step 5 of task 1

3. Create the following expression in the **Expression Definition** pane:

percentage([Revenue])


Hint: the percentage() is found on the **Functions** tab, in the **Summaries** folder.

4. Validate the expression and then click **OK**.

The results appear as follows:

Product type	Revenue	% of Total revenue
<Updated Product line>		
<Product type>	<Revenue>	<% of Total revenue>
<Updated Product line> - Total	<Total(Revenue)>	
<Updated Product line>		
<Product type>	<Revenue>	<% of Total revenue>
<Updated Product line> - Total	<Total(Revenue)>	
Overall - Total	<Total(Revenue)>	

You can see that there is a % of Total Revenue calculation for each Product type, but not for Product line. You will add the calculation to the Product line.

5. On the toolbar, click **Unlock(currently locked)** .
6. In the **Product type** row, right-click the **% of Total Revenue** calculation, and then click **Copy**.

7. In the **<Updated Product line> - Total** row, right-click the empty cell on the right, and then click **Paste**.

The results appear as follows:

Product type	Revenue	% of Total revenue
<Updated Product line>		
<Product type>	<Revenue>	<% of Total revenue>
<Updated Product line> - Total	<Total(Revenue)>	<% of Total revenue>
<Updated Product line>		
<Product type>	<Revenue>	<% of Total revenue>
<Updated Product line> - Total	<Total(Revenue)>	<% of Total revenue>
Overall - Total	<Total(Revenue)>	

Now there are % of Total Revenue calculations for both Product line and Product type.

8. On the toolbar, click **Lock(currently unlocked)** .

Task 3. Run the report.

1. On the toolbar, click **Run Report**.

The results appear as follows:

Product type	Revenue	% of Total Revenue
Camping EQ.		
Cooking Gear	83,917,515.27	6%
Lanterns	40,439,357.85	3%
Packs	111,009,558.31	7%
Sleeping Bags	98,164,939.4	7%
Tents	166,851,052	11%
Camping EQ. - Total	500,382,422.83	33%
Golf EQ.		
Golf Accessories	16,184,834.94	1%
Irons	81,997,784.03	5%
Putters	29,695,643.19	2%
Woods	102,232,008.39	7%
Golf EQ. - Total	230,110,270.55	15%
Mountaineering EQ.		
Climbing Accessories	29,736,885.88	2%
Rope	46,326,469.15	3%
Safety	32,716,937.1	2%
Tools	52,259,531.13	3%
Mountaineering EQ. - Total	161,039,823.26	11%

You can see that the Product type % of total revenue is listed on each line and the Product line % of total revenue is listed on each Product line subtotal line. Notice that the Product type percentages may not equal the total of the Product line % value due to rounding. For example, with Camping Equipment: 6% + 3% + 7% + 7% + 11% = 34%.

You can page down to see the other values.

2. Close **IBM Cognos Viewer**.

Leave Report Studio open for the workshop.

Results:

You created a report with revenue for product line and product type that shows the percentage contribution of each to the total 2006 revenue. You also changed the names of some product lines that contained the word Equipment to say EQ. instead.

Summary

- At the end of this course, you should be able to:
 - create calculations based on data in the data source
 - add run-time information to the reports
 - create expressions using functions

INTERACTION - Check Sticker: Check off each objective as it is summarized.

Workshop 1: Sales Percent by Sales Rep and Country

Sales management would like to improve overall product line sales. To do this they need to start with a report that shows which product lines each salesperson tends to sell the most of. Sales management would like to be able to filter by specified year and country or countries.

To accomplish this:

- Navigate to Public Folders\B5159\Module 08_Extend Reports Using Calculations.
- Open Workshop 1 Start.
- Add a calculated column called EmpRevPercent.
- Group Year and Employee Name, Make Year a Header
- Aggregate the Revenue column to create a total.
- Format the Revenue data in \$(USD).
- Add EmpRevPercent summary row.
- Format the EmpRevPercent data as a Percent.
- Format summary row to display the data item value.
- Add a Year parameter
- Add a prompt to allow users to focus on one or more countries.
- Add a report title
- Run the report and then focus on information for Canada and the United States, and for the year 2006.

For more detailed information outlined as tasks, see the Task Table section.

For the final query results, see the Workshop Results section that follows the Task Table section.

Workshop 1: Task Table

Task 1: Open the report and add data items and query calculations.	
Where to Work	Hints
Toolbar File > Open	<ul style="list-style-type: none"> Navigate to Public Folders\B5159\ Module 08_Extend Reports Using Calculations.
	<ul style="list-style-type: none"> Open Workshop 1 Start.
Toolbox	<ul style="list-style-type: none"> Add Query Calculation
	<ul style="list-style-type: none"> Name: EmpRevPercent
Query Calculation	<ul style="list-style-type: none"> Use Revenue from the Data Items tab.
	<ul style="list-style-type: none"> Use Country from the Data Items tab
Task 2: Group and aggregate report.	
Where to Work	Hints
Toolbar	<ul style="list-style-type: none"> Group Year and Employee Name.
	<ul style="list-style-type: none"> Create a Header using the Year column
	<ul style="list-style-type: none"> Add total aggregate to Revenue.

Task 3: Format data.	
Where to Work	Hints
Properties pane	<ul style="list-style-type: none"> Format Revenue as \$(USD). <p>Note: Add formatting at the detail and all summary levels.</p>
Toolbar	<ul style="list-style-type: none"> Unlock the report
List column	<ul style="list-style-type: none"> Copy EmpRevPercent to the Total summary row
Toolbar	<ul style="list-style-type: none"> Lock the report
Properties pane	<ul style="list-style-type: none"> Format EmpRevPercent as Percent <p>Note: Add formatting at the detail and all summary levels.</p>
Task 4: Add a parameter and a prompt.	
Where to Work	Hints
Toolbar	<ul style="list-style-type: none"> Create a parameter for Year.
	<ul style="list-style-type: none"> Create a Value prompt on Country and name it Countries
	<ul style="list-style-type: none"> Add a Prompt button to the right of the Value prompt and set its type to: Finish.

Task 5: Format the summary rows and add a report title.	
Where to Work	Hints
Report Header	<ul style="list-style-type: none"> • Create title: Sales Percent by Sales Rep and Country
	<ul style="list-style-type: none"> • Left align the title
Task 6: Run the report.	
Where to Work	Hints
Toolbar	<ul style="list-style-type: none"> • Run Report
	<ul style="list-style-type: none"> • Select multiple countries (Canada and the United States).
	<ul style="list-style-type: none"> • Type 2006

If you need more information to complete a task, see the Step-by-Step instructions at the end of the Workshop.

Workshop 1: Workshop Results

After Canada and the United States have been selected from the prompt and 2006 has been entered, the results appear as follows:

Sales Percent by Sales Rep and Country

*

Italy
Japan
Korea
Mexico
Netherlands
Singapore
Spain
Sweden
Switzerland
United Kingdom
United States

Finish

[Select all](#)
[Deselect all](#)

Canada

Employee name	Product line	Revenue	EmpRevPercent
2006			
Brendon Pike	Camping Equipment	\$6,401,029.32	10%
	Golf Equipment	\$1,078,392.98	2%
	Mountaineering Equipment	\$1,639,914.11	2%
	Outdoor Protection	\$115,169.00	0%
	Personal Accessories	\$1,513,265.77	2%
Brendon Pike - Total		\$10,747,771.18	16%

Workshop 1: Step-by-Step Instructions

Server: localhost
 User/Password: brettonf/Education1!
 Studio: Report Studio
 Package: Go Data Warehouse (query)
 Report Type: List
 Folder: Sales and Marketing (query)
 Namespace: Sales (query)

Task 1. Open the report and add data items and query calculations.

1. In **Report Studio**, click **File**, **Open**, and navigate to **Public Folders\B5159\Module 08_Extend Reports Using Calculations\Workshop 1 Start**, and then click **Open**.
2. In the **Insertable Objects** pane, click the **Toolbox** tab, and then drag a **Query Calculation** to the right of the last column.
3. In the **Name** box, type **EmpRevPercent** and then click **OK**.
4. Click the **Data Items** tab, and then double-click **Revenue** to add it to the Expression Definition.
5. At the end of the expression, type **/Total([Revenue] for [Country])**

Note: You can retrieve the Total function from the Function tab, Summaries folder. You can also drag Revenue and Country from the Data Items tab.

The entire expression is as follows:



[Revenue]/Total([Revenue] for [Country])

6. Validate the expression and then click **OK**.

Task 2. Group and aggregate the report.

1. Ctrl-click **Year** and **Employee name** columns, then on the toolbar, click **Group/Ungroup**.
2. Click the **Year** column, on the toolbar click **Headers & Footers**, and then click **Create Header**.
3. With **Year** column still selected, click **Delete**.
4. Click **Revenue**, on the toolbar click **Summarize**, and then click **Total**.


Task 3. Format data.

1. With the **Revenue** column still selected, ctrl-click each of the summary cells for the column.
2. In the **Properties** pane, under **Data**, double-click **Data Format**.
3. In the **Format type** list, click **Currency**.
4. Under **Properties**, click **Currency**, in the list click **\$(USD) – United States of America, dollar**, and then click **OK**.
5. On the toolbar, click **Unlock**  to unlock the report.
6. Click the **EmpRevPercent** column cell, and then press Ctrl+C to copy the cell.
7. Click the empty cell just below **EmpRevPercent** and Ctrl+V to paste.
8. On the toolbar, click **Lock**  to lock the report.
9. Click the **EmpRevPercent** column, and Ctrl-click each of the summary cells for the column.
10. In the **Properties** pane, under **Data**, double-click **Data Format**.
11. In the **Format type** list, click **Percent**.
12. Click **OK**.

Task 4. Add a parameter and a prompt.

1. On the toolbar, click **Filters**, **Edit Filters**, ensure the **Detail Filters** tab is selected, click **Add**, click **Advanced**, and then click **OK**.
2. In the **Available Components** pane, click the **Data Items** tab, drag the **Year** data item to the **Expression Definition** pane, and then type **=?Year?**.
3. Click **Validate**, in the **Year** prompt, type **2006**, and then click **OK**.
4. Once the expression is validated without any errors, click **OK**, and then click **OK** to close the dialog box.
5. In the **Insertable Objects** pane, from the **Toolbox** tab, drag a **Value Prompt** to the left of the list.
6. In the **Choose Parameter** dialog box, change the parameter name to **Countries**, and then click **Next**.
7. On the **Create Filter** page, next to **Package item**, click the **ellipsis**.
8. In the **Choose Package Item** dialog box, expand the **Sales and Marketing (query)** folder, expand **Sales (query)**, expand **Employee by region**, and then double-click **Country**.
9. In the **Operator** list, click **in**, and then click **Next**.
The 'in' operator makes the prompt multi-select.
10. Click **Next**, and then click **Finish**.
11. In the **Insertable Objects** pane, drag a **Prompt Button** to the right of the value prompt, and then in the work area, click the **Prompt Button**.
12. In the **Properties** pane, under **General**, click the **Type** property, and then from the list, click **Finish**.

Task 5. Format the summary rows and add a report title.

1. Double-click the title area of the report header.
2. In the **Text** box, type **Sales Percent by Sales Rep and Country**.
3. Click to the right of the title in the header block and then click on **Left**  from the style toolbar.

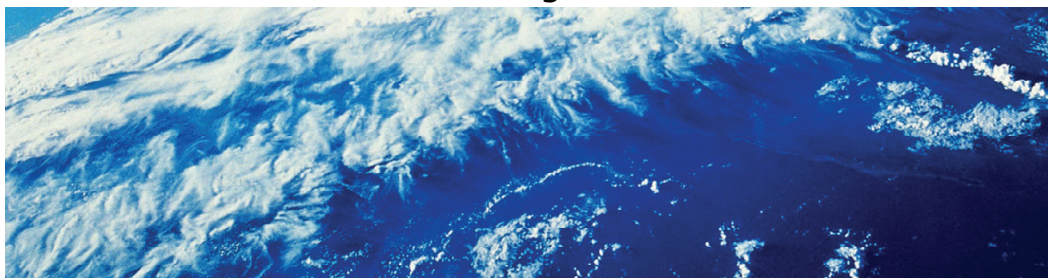
Task 6. Run the report.

1. On the toolbar, click **Run Report**.
2. In the prompt, click **Canada**, Ctrl-click **United States**, type **2006** for the year, and then click **OK**.
3. Close **IBM Cognos Viewer**, close **Report Studio**, and then close **Internet Explorer**.



Present Data Using Maps

IBM Cognos BI



Business Analytics

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Objectives

- At the end of this course, you should be able to:
 - present data using map reports
 - navigate to another level within a map

If you intend to teach this module in custom courses, students should be familiar with:

- Report Studio Basics
- Filters
- Prompts

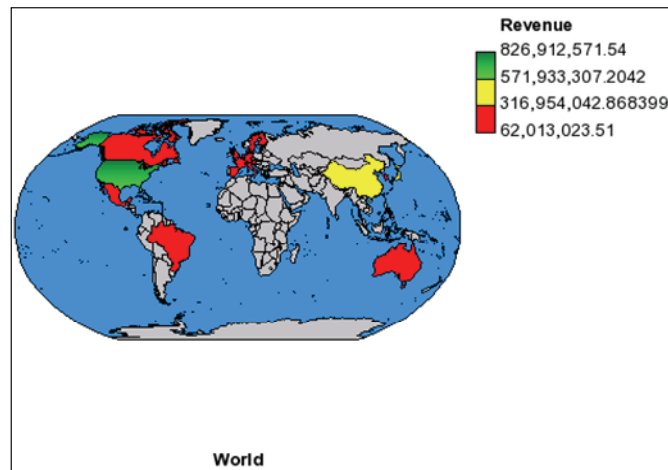
Suggested module to reference:

- Introduction to the Reporting Application
- Focus Reports Using Filters
- Focus Reports Using Prompts

INTERACTION - Star Sticker: Use the star sticker to highlight each objective as it is introduced.

Display Data Using Map Reports: Overview

- Report Studio provides a set of map files that you can use to create maps to show data.



You can create a wide variety of map reports which you can format and customize.

Any image can be used and converted to a .cmf file to be used for reporting purposes such as an image of a vehicle to show parts that are recalled.

You cannot modify the map file itself using the IBM Cognos application.

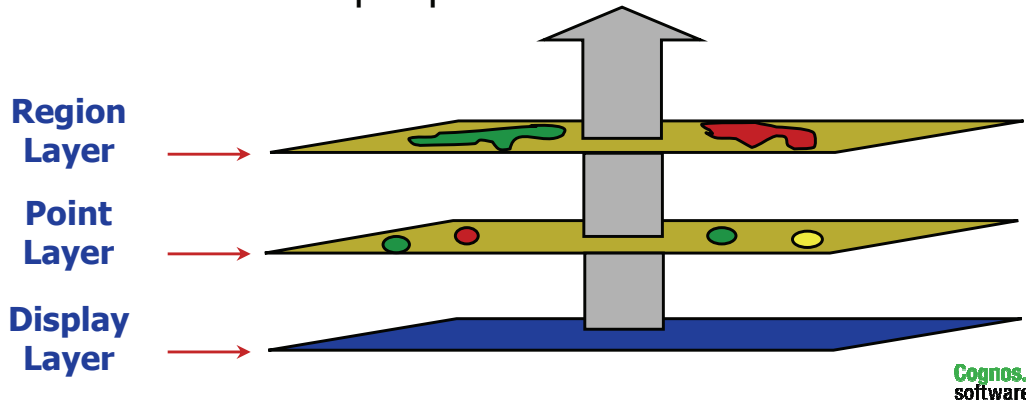
You are to contact the company that created the file for such alterations. The name of these companies is indicated in the lower right box of the Choose Map dialog.

Map files are added and formatted through "Map Manager".

INTERACTION - Toolbar Emoticons > Yes/No: Ask participants if anyone uses maps in their reports

Add Data to Map Reports

- Create map reports using combinations of three types of overlaid layers.
- By combining these layers, you can add information and context to map reports.



Cognos.
software
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Use the region and point layers to link data to the map report.

Use the display layer to add context to the map report.

Decide which combination of layers you require when creating a map report and add only the necessary layers.


The Default drop zone section is used for the default measure of the map.

The regions displayed and their appearance depend on the data you add to the Color and Location drop zones in the region layer.

Points appear as circles that can be color-coded and sized depending on the measure values you add to this layer.

Display layers can add context to a map (i.e. grid lines, oceans, or capital cities) -Display layers are optional

Users are able to create custom layers for their maps in Map Manager. These are layers such as Region, Country, Province /State, City, etc. Creating custom layers is not discussed further in this course.

Business Analytics


Specify Whether Map File Data Must Match Your Data Source


Data Source
Contents:
City A
City B
City C

**The map file
contains city
names not
contained in the
data source**

Map File
Contents:
City A City D
City B City E
City C

Create an Alias to match the data from the Map File to the Data Source

Name	Alias	Language
United States	U.S.A	English


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By default, for map reports to run successfully, the names of data (such as country or city names) in the map file must match the names used in your data source.

You can create an alias in a map report for any object whose map file name is different from that in your data source

To allow a report to run successfully, even if the map file does not contain a match for each item in the data source, you can choose to ignore data with no features.

For example, if you are querying data that contains information from cities all over the world and the map file only has North American cities, you will have query data for which there are no matching cities in the map.

In a situation such as the one described above, when your data source does not contain all the data found in the map file, instead of setting the map report to ignore data with no features, you can filter the query to ensure it only contains data that matches that in the map. (In the example discussed above, you would filter the query to include only North American cities.)

Demo 1: Create and Format a Map Report

Purpose:

You want a map report to display the revenue generated in different regions of the world. You will create a second map to display the quantity sold and the revenue generated in each North American capital city.

Server:	localhost
User/Password:	brettonf/Education1!
Studio:	Report Studio
Package:	Go Data Warehouse (query)
Report Type:	Map
Folder:	Sales and Marketing (query)
Namespace:	Sales (query)

Task 1. Create a map displaying revenue generated in different regions of the world.

1. In **Report Studio**, on the toolbar, click **New**, and then when prompted to save the report, click **No**.
2. In the **New** dialog box, click **Map**, and then click **OK**.

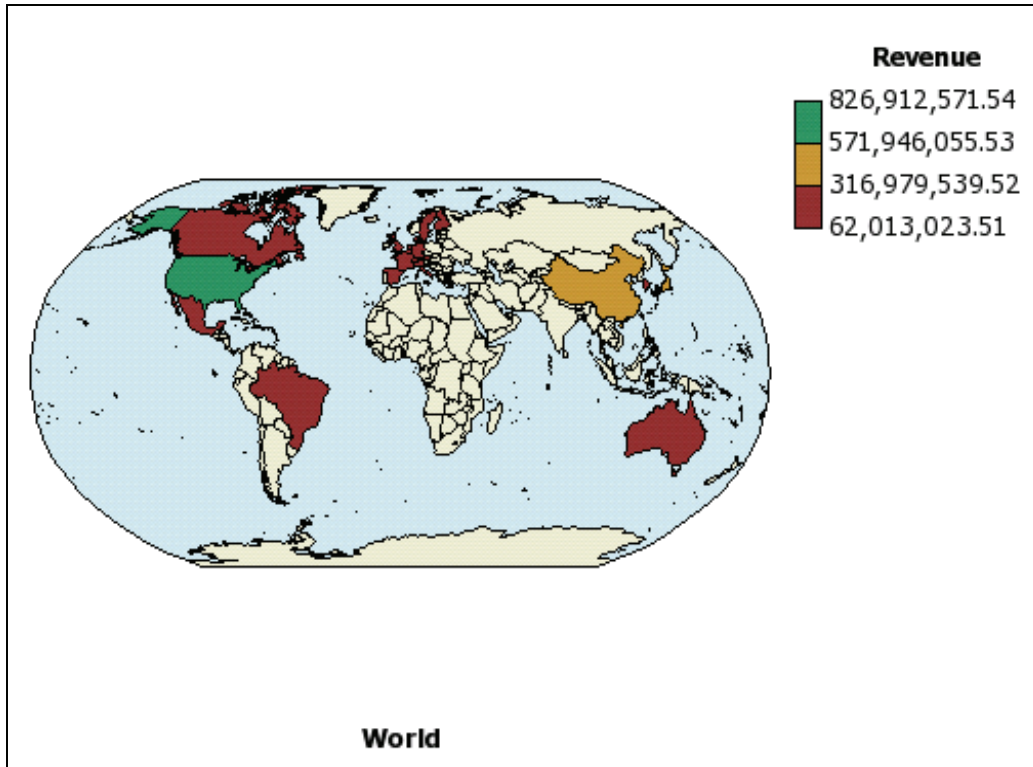
By default, the world is the selected map, and the region layer is Countries + Territories. You want the oceans to appear in the map.

3. In the **Display layers** list, click **Oceans**, and then click **OK**.

A blank world map appears. You want countries to appear in different colors that correspond to their generated revenue.

4. From the **Insertable Objects** pane, expand **Sales fact**, and then drag **Revenue** to the **Color** drop zone.
5. Expand **Retailers**, and drag **Retailer country** to the **Location** drop zone.
6. On the toolbar, click **Run Report**.

The result appears as shown below:



Beige areas did not generate revenue. The legend has three colors: light green, dark yellow, and maroon, indicating different amounts of revenue generated.

7. Close **IBM Cognos Viewer**.

Task 2. Change colors for countries without data.

1. In the map area, click **Region layer: Countries + Territories**, in the **Properties** pane, under **Color & Background**, double-click the **Fill Effects** cell, and then in the **Effect** list, ensure **Color** is selected.
2. In the **Color** box, click **Color**, click the **Named Colors** tab, and then click **Silver**.
3. Click **OK** twice to close each dialog box.

You want to use a gradient to display countries that generate the highest amount of revenue.

4. In the map area, ensure **Region layer: Countries + Territories** is still selected, and then in the **Properties** pane, double-click the **Palette** cell.
5. In the list of palette entries, click the **light green** entry, and then click **Delete**.
6. In the list of palette entries, click the **dark yellow** entry (the second entry).

To highlight countries generating a high level of revenue, you want these countries to appear in two blended shades of green.

7. Click **New** , and then click **Gradient**.

Report Studio adds a new range with a percent half way between the two existing ranges. In this case, it will be 66%.

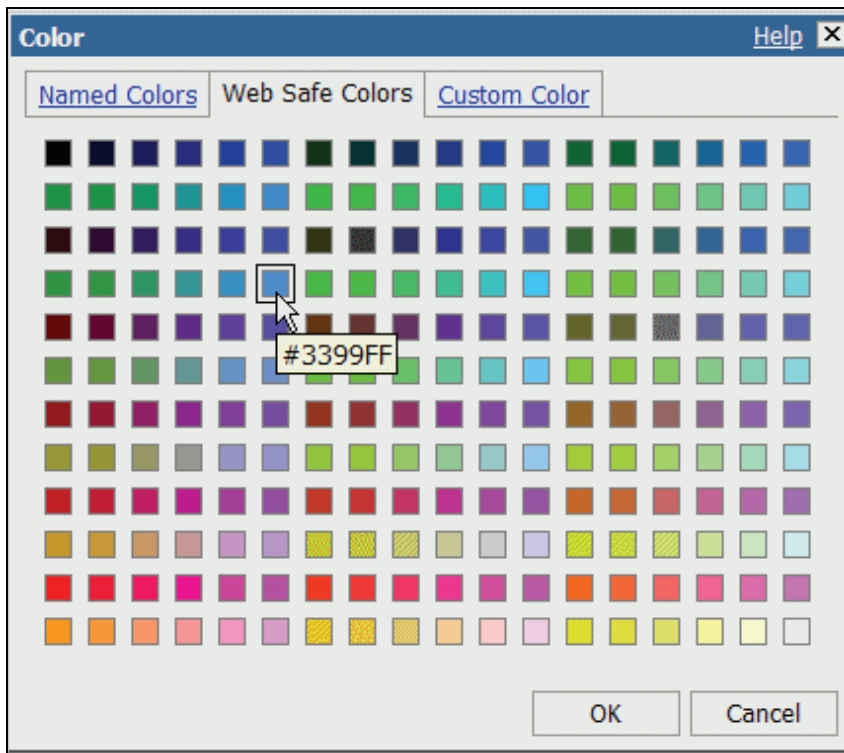
8. In the **Direction** list, click **Top to Bottom**.
9. Click **From color**, on the **Named Colors** tab, click **Green**, and then click **OK**.
10. Click **To color**, click **Lime**, and then click **OK**.
11. Click the **Maroon** color and change it to the named color **Red**.
12. Click the **Dark Yellow** color and change it to the named color **Yellow**.
13. Click **OK** to close the Palette dialog box.

INTERACTION - Raise Hand: Allow students to choose colors that will be used

Task 3. Modify the fill color used in the display layer.

You want to change the color of the oceans.

1. In the map area, click **Display layer: Oceans**, and then in the **Properties** pane, under **Color & Background**, double-click the **Fill Effects** cell.
2. Click **Color**, click the **Web Safe Colors** tab, and then click **#3399FF**, as shown below:



As an alternative, click on the **Custom Color** tab and enter the following values for Red: **33**, Green: **99**, Blue: **FF**.

3. Click **OK** twice to close each dialog box.
4. On the toolbar, click **Run Report**.

The formatting you specified is applied to the map.

5. Close **IBM Cognos Viewer**.

INTERACTION - Markup > Laser Tool: Point out different countries and let the students know that if they only want countries for which their company has data to appear in the map, they can set the Show Features with No Data property for the region layer to No. Show where this is on the Properties pane.

Task 4. Create a map report displaying revenue and quantity sold in different cities in North America.

1. On the toolbar, click **New**, and when prompted to save the report, click **No**.
2. In the **New** dialog box, click **Map**, and then click **OK**.
3. In the **Maps** list, expand **Americas**, and then click **North America**.
4. In the **Region layers** list, click **(None)**, in the **Point layers** list, click **Capitals**, and then under **Display layers**, click **States and Provinces**.
5. Click **OK**.

You want the color of each capital city to reflect the amount of generated revenue.

6. From the **Insertable Objects** pane, under **Sales fact**, drag **Revenue** to the **Color** drop zone.

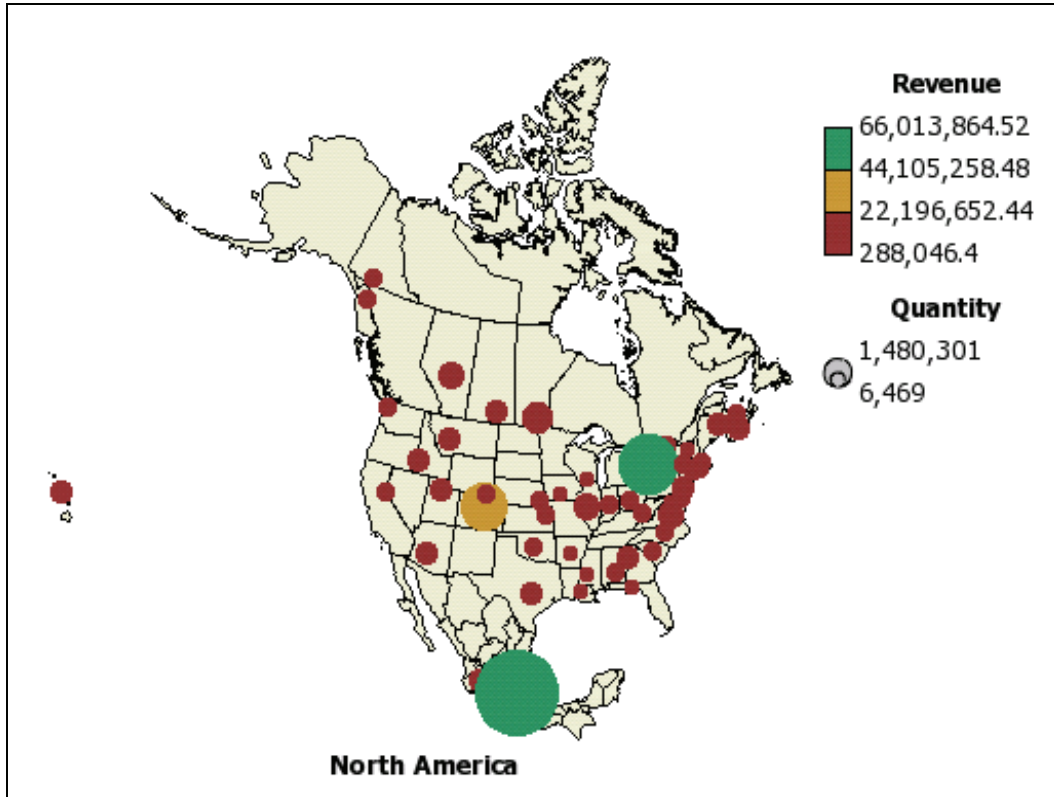
You want the point size for each city to reflect the quantity sold.

7. Under **Sales fact**, drag **Quantity** to the **Size** drop zone.
8. Expand **Retailers**, and then drag **City (multiscript)** to the **Location** drop zone.

You want the map report to run successfully even if our source data contains some cities that are not found in the map file.

9. Click the map background, in the **Properties** pane, under **Data**, click the **Ignore Data With No Features** cell, and then in the list, click **Yes**.
10. On the toolbar, click **Run Report**.

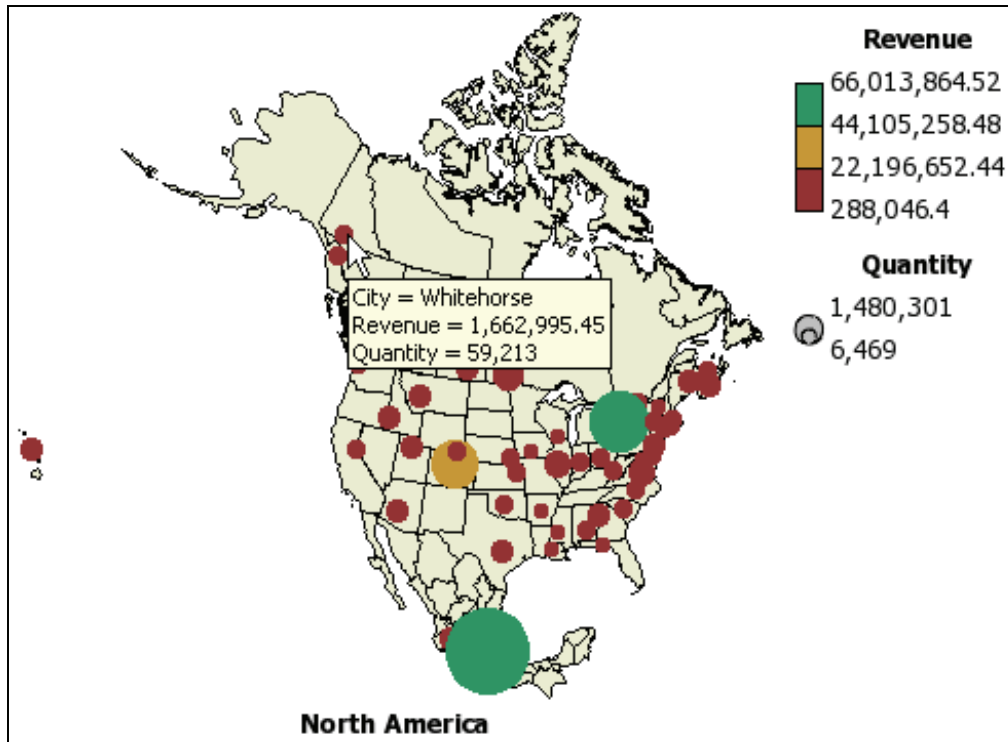
The result appears as shown below:



The point color indicates the amount of revenue generated in each capital city.
The point size indicates the quantity of products sold in each city.

11. Point to the red dot in the top left section of the map.

The results appear as follows:



A tool tip displays information about the capital city.

12. Close **IBM Cognos Viewer**.

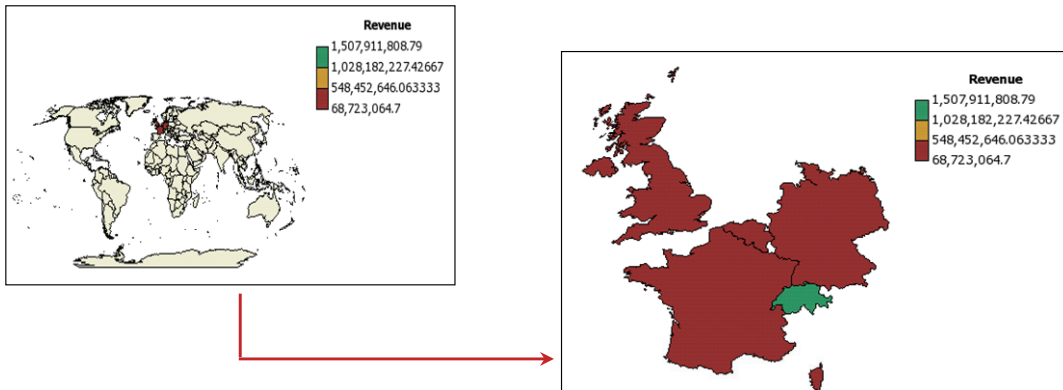
Leave Report Studio open for the next demo.

Results:

You created and formatted a map report to examine revenue generated in different countries. You also created a map to display the revenue generated and quantity sold in each North American capital city.

Focus Map Information Using Zoom Capabilities

- You can zoom in on specific areas of you map to focus information.



Demo 2: Add Zoom Capability to a Map

Purpose:

You want to create a map report that enables users to focus on regional data by zooming in on a specific region.

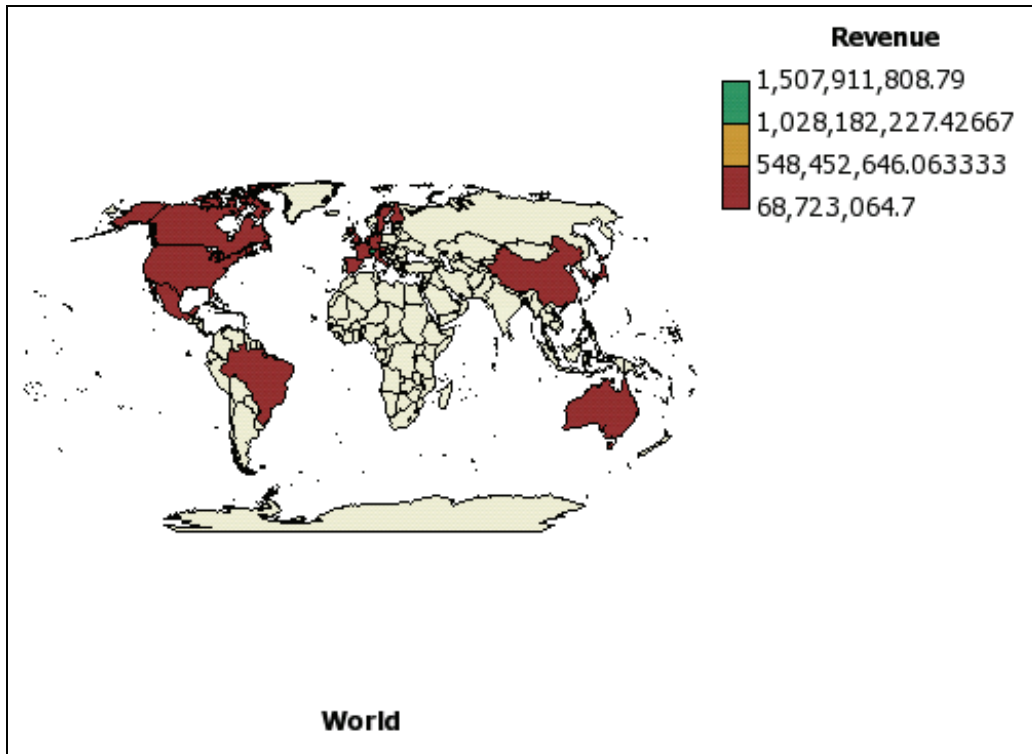
Server:	localhost
User/Password:	brettonf/Education1!
Studio:	Report Studio
Package:	Go Data Warehouse (query)
Report Type:	Map
Folder:	Sales and Marketing (query)
Namespace:	Sales (query)

Task 1. Create a map report

1. Create a new **Map** report.
2. Under **Maps**, expand the **World** folder, and then click the **World** map.
3. In the **Region layers** box, ensure **Countries + Territories** is selected.
4. In the **Point layers** box, ensure **None** is selected, and then click **OK**.
5. In the **Insertable Objects** pane, expand **Sales fact**, and drag **Revenue** to the **Color** drop zone.
6. Expand **Employee by region**, and drag **Country** to the **Location** drop zone.

- On the toolbar, click **Run Report**.

The results appear as follows:



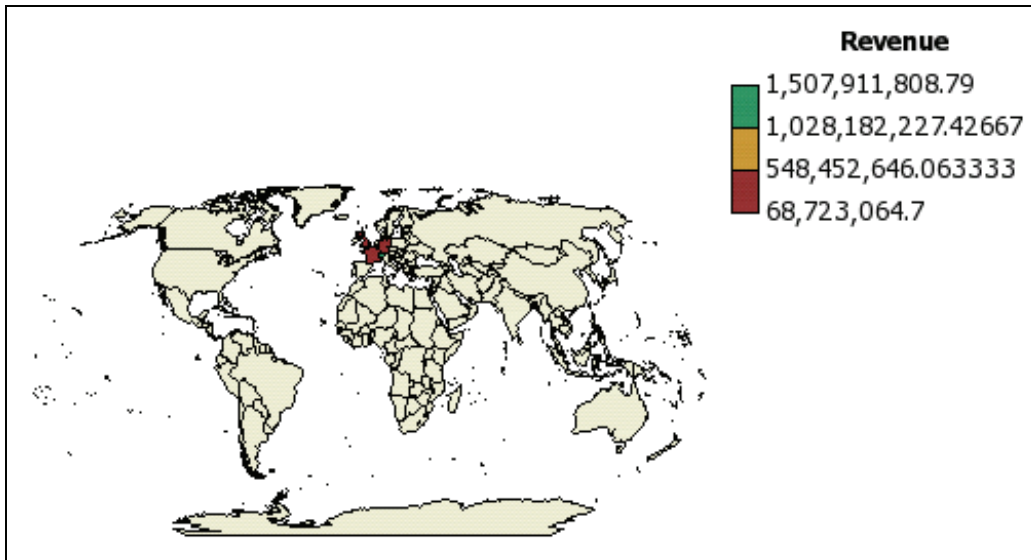
- Close **IBM Cognos Viewer**.

Task 2. Add a regional prompt.

- From the toolbar, click **Filters**, **Edit Filters**, click **Add**, click **Advanced**, and then click **OK**.
- Add the following parameter prompt in the Expression Definition dialog box:
[Sales (query)].[Employee by region].[Branch region]= ?Region?
- Click **Validate**, in the **Branch region** list, select **Central Europe**, and then click **OK** three times.
- On the toolbar, click **Run Report**.

- From the prompt page, select **Central Europe**, and then click **OK**.

The results appear as follows:



Notice how difficult it is to see each country in Central Europe.

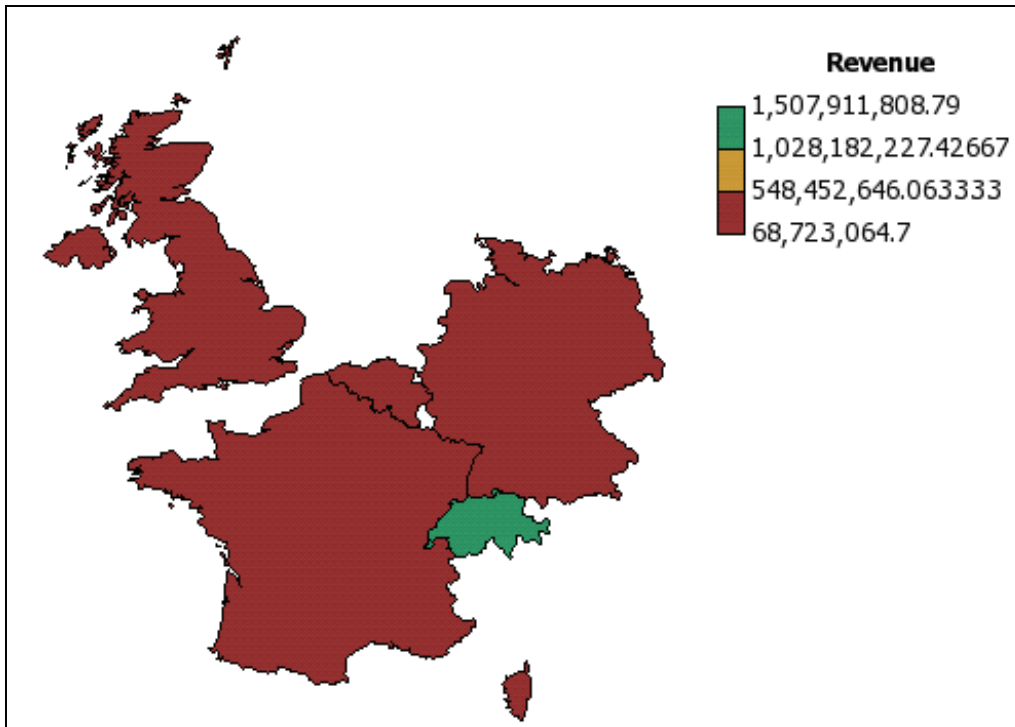
- Close **IBM Cognos Viewer**.

Task 3. Add zoom capabilities.

- Click the map background, and then from the **Properties** pane, under **General**, set **Expand Features** to **Yes**.
- On the toolbar, click **Run Report**.

3. From the prompt page, click **Central Europe**, and then click **OK**.

The results appear as follows:



Now your regional managers can easily focus on their sales region.

4. Close **IBM Cognos Viewer**, close **Report Studio**, and then close **Internet Explorer**.

Results:

You created a map report that enabled users to focus on regional data by zooming in on a specific region.

Summary

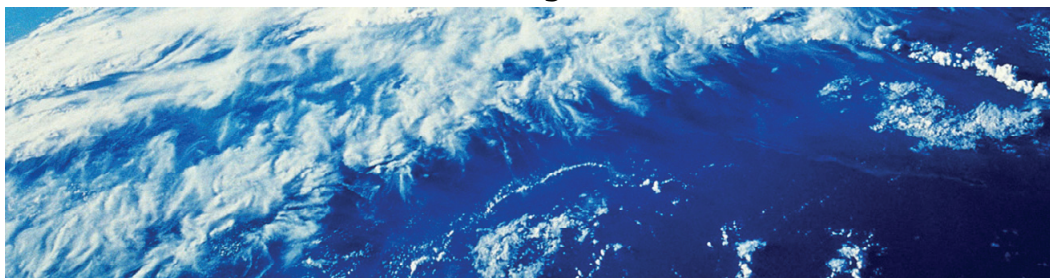
- At the end of this course, you should be able to:
 - present data using map reports
 - navigate to another level within a map

INTERACTION - Check Sticker: Check mark each objective as it is summarized.



Analyze Data Using Statistical Reports

IBM Cognos BI



Business Analytics

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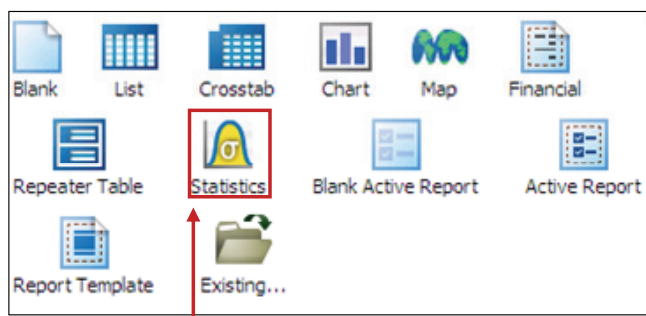
Objectives

- At the end of this course, you should be able to:
 - discuss statistical report types
 - examine descriptive statistics
 - explore statistical charts

INTERACTION - Star Sticker: Star each objective as it is introduced.

Introduction to IBM Statistics

- IBM Cognos Statistics allows Report Authors to create statistical reports in Report Studio.
- Statistical reports deliver a richer understanding of business data to report consumers.



IBM Cognos Statistics is installed

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IBM Cognos Statistics is a separate installation component. Statistical objects will be available through Report Studio if your administrator has installed it and granted you the required capabilities.

When IBM Cognos Statistics has been installed, you will see the Statistics report type in the New dialog box.

For a report authors and consumers to fully absorb the insights that statistical reports have to offer, it is recommended they have a statistical background or some fundamental understanding of statistical concepts.

IBM offers two courses on IBM Statistics:

- 1) IBM Cognos Report Studio: Introduction to Statistics, a WBT where those with little or no statistical training can be introduced to the statistical concepts that can be used in authoring statistical reports.
- 2) IBM Cognos Report Studio: Statistical Analysis - a one day classroom course where participants learn to author statistical reports to gain a more advanced understanding of their business data.

INTERACTION - Microphone: Ask participants if anyone has a background or fundamental understanding of statistical concepts.

Discuss statistical report types

- You can choose from a variety of statistical report types:
 - Descriptive
 - Regression
 - Control Charts
 - Compare Means
 - Nonparametric Tests
 - Correlations

Descriptive - explore distribution, variability, and percentile information of data.

Regression - explore the relationship between one dependent and one independent variable.

Control Charts - explore data to monitor, control, and improve a process.

Compare Means - compare the means between two or more groups of data to determine if any differences are statistically significant.

Nonparametric Tests - perform significance testing on data where Compare Means cannot be used

Correlations - explore the magnitude of a relationship between pairs of two variables.

Dependent variable: a variable which is affected by the manipulation of another variable. See below for example.

Examples of when you would use a specific report type:

Regression - you can develop a method of predicting a salesperson's total yearly sales (dependent variable) based on the sales person's age, education, and years of experience (independent variable).

Controls Charts - for statistical process control E.G. are the different shifts on a production line performing consistently.

Compare Means - compare the mean household income for customers grouped by areas in the city

Nonparametric tests - compare the number of transactions that use different payment methods against the expected numbers.

Correlation - is there a relationship between household income and age, and if so, how strong is it?

Examine descriptive statistics

- A descriptive statistics report generates a collection of mathematical tools to describe data.
- Data is described by:
 - measures of central tendency
 - measures of dispersion
 - measures of distribution

Measures of central tendency - there are multiple values that describe the center set of values.

Measures of dispersion - these are values that describe the spread of data around the central tendency values.

Measures of distribution - these are values that describe the shape and symmetry of the distribution.

Examples of different types of measures:

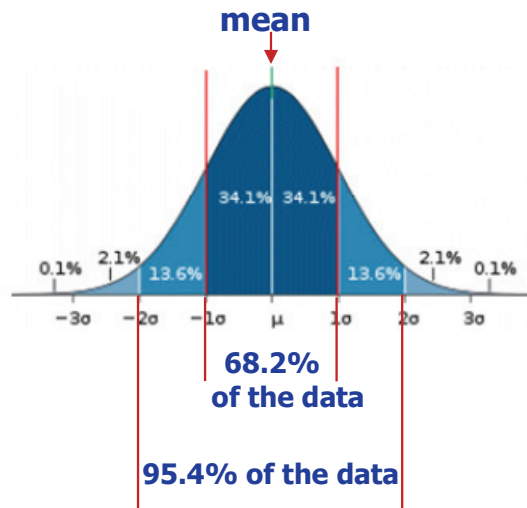
Measures of central tendency - mean (average) and median

Measures of dispersion - standard deviation, minimum, maximum

Measures of distribution - skewness, kurtosis

Examine Normality and Related Terms

NORMAL DISTRIBUTION

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In a normal distribution, the data set is symmetrically dispersed around the mean, in a bell-shape. You find 34% of the cases lie within the area between the mean and +1 standard deviation and another 34% would lie within the area between the mean and -1 standard deviation. Therefore, 68% of the data lies within plus and minus 1 standard deviations of the mean. Similarly, in a normal distribution, 95% of the cases would lie within plus and minus 1.96 standard deviations of the mean.

Demo 1: Create a Descriptive Statistics Report

Purpose:

As the report author in an consumer research group, a request has been made for a statistics report on DVD players. To get an initial overall understanding of the DVD player ratings by consumers, you will run a descriptive statistics report.

Server: localhost
User/Password: bretttonf/Education1!
Studio: Report Studio
Package: DVDPLAYER (located at Public Folders > Samples > Statistics > Packages)
Report Type: Statistics

Task 1. Create a descriptive statistics report.

1. In **Report Studio**, create a new **Statistics** report using the **\Samples\Statistics\Packages\DVDPLAYER** package.
2. Expand **Descriptive Statistics**, click **Basic Descriptive Statistics**, ensure the **Use the wizard to create statistical objects** check box is selected, and then click **OK**.
3. Ensure **Summary descriptive statistics** is selected, and then click **OK**.
A wizard opens which will prompt you for the report items needed to run a basic descriptive statistics report.
4. On the **Create Summary Descriptive Statistics** window, in the left pane, expand **DVDPLAYER**.

5. Ctrl-click all measures, drag them to the **Analysis Variables** drop zone, and then click **Next**.

You have added two measures as analysis variables.

6. Click **ID**, drag it to the **Cases variable** drop zone, and then click **Next**.

A case uniquely identifies each data point being analyzed. Using the DVD player data, the information was collected through a survey, therefore a case is equal to the data collected in a single survey, with the case variable being a unique survey ID.

On the Specify the statistics to display page, a list of all the descriptive statistics that will be included in this report are selected.

7. Click **Finish**.

You see the variables added to the work area. If you chose not to work in the wizard, you could have added the variables here.

8. On the toolbar, click **Run Report**.

The results appear as follows:

Descriptive Statistics		
	Actual Age	Total DVD assessment
Mean	38.72	32.22
Std. Deviation	13.318	6.359
N	67	68
Median	37.00	31.00
Minimum	18	18
Maximum	63	47

A table of descriptive statistics shows the analysis variables in the columns and the summary statistics.

When using dimensional data, since it is structured differently, you may have to use a different technique to specify the cases for your statistical object. For example, you may need to exit the wizard to insert calculated dimensional sets from a dimensional data source.

Task 2. Analyze the measures of central tendency.

Measures of central tendency provide a single number that summarizes the average distribution of the DVD player rating variables of Actual Age and Total DVD assessment (the overall score).

To begin, you will examine the number of participants' responses (cases) that were included in this analysis (also known sample population). The sample size is represented by N. The table shows 67 responses for Actual Age, and 68 for Total DVD assessment.

The mean and median are both measures of central tendency. The mean is the sum of the measure values divided by the number of cases. This is also commonly known as the arithmetic average.

The median is the data value in the middle of all of the values analyzed. That is, half of the cases have values above the median and half of the cases fall below the median.

You will analyze the mean and medians for the variables to gain further insight into the DVD player rating data.

Actual Age - the mean is 38.72 years and the median is 37 years.

Total DVD assessment - the mean is 32.22 and the median is 31.

Other examples of case variables are unique ID, order number, or part name.

To create a case variable, you can use an item from the data tree or you can define a query.

When using dimensional data, because it is structured differently, you may have to use different techniques to add cases, outside of the wizard. For more information, you can attend the one-day course entitled *IBM Cognos Statistics: Author Statistical Reports in Report Studio (v10.1)*.

Task 3. Analyze the measures of dispersion.

Measures of dispersion describe the degree of spread around the central tendency measure. For example, the observations (cases) may be clustered around the mean, or spread out far from the mean.

The simplest measures of dispersion to understand are maximum and minimum. Looking at the analysis variables' measures of dispersion, you can learn more about the sample data set. Actual Age describes the population who rated DVD players, where the minimum age was 18 and the maximum age was 63. You know you have loan data from people who range widely in age.

Standard deviation is another measure of dispersion. The standard deviation for Actual Age is 13.318 years. Therefore 68% of the cases lie within 25.4 and 52 years of age.

1. Close **IBM Cognos Viewer**.

Task 4. Analyze the measures of distribution.

Measures of distribution such as kurtosis and skewness, characterize the shape and symmetry of the distribution. Recall that a normal distribution resembles a symmetrical bell-shape.

You will run another descriptive statistics report, and include measures of distribution to understand better the distribution of the bank loan data.

1. In **Report Studio**, click the statistics object and ensure that the title of the **Properties** pane is **Summary Descriptive Statistics**.
2. In the **Properties** pane, under **General**, double-click **Edit in wizard**.
3. Click **Next** until you arrive at the **Specify the statistics to display** page.
4. Select **Skewness** and **Kurtosis** check boxes, and then click **Finish**.

Normal distribution

- 1) draw a symmetrical bell-shaped distribution curve to illustrate what is meant by normal distribution.
- 2) Draw a vertical line intersecting the bell curve to represent the mean.
- 3) Draw two more vertical lines, one on each side of the mean, so represent a total spread of 68% of the distribution.

5. On the toolbar, click **Run Report**.

Descriptive Statistics		
	Actual Age	Total DVD assessment
Mean	38.72	32.22
Std. Deviation	13.318	6.359
N	67	68
Median	37.00	31.00
Kurtosis	-1.105	-.334
Std. Error of Kurtosis	.578	.574
Skewness	.116	.313
Std. Error of Skewness	.293	.291
Minimum	18	18
Maximum	63	47

You will start by analyzing Skewness. In the case of a normal distribution, where the data is perfectly symmetrical around the mean, there is no skewing of the data, therefore Skewness would have a value of 0. Where the data is pulling more to the left, creating a long right tail in the positive direction, the Skewness is positive. Conversely, where data is pulling more to the right, creating a long left tail in the negative direction, the Skewness is negative.

You will continue to analyze Actual Age, where you have a Skewness of .116, which is close to zero. This distribution resembles a normal one, with a small pull to the left side and a longer tail on the right side.

Refer to the Report Studio User Guide, Chapter 8 - Statistics, for diagrams of skewness and kurtosis that you can draw for participants.

To understand Kurtosis and the shape of distribution it creates, again you will start with the normal distribution of symmetrical bell-shape. Positive kurtosis would have a very narrow, tall, almost pointy bell shape, with long tails on either side. Negative kurtosis has a bell shape that has been squashed down into a hill, with almost no tails on either side.

The Actual Age variable has a Kurtosis of -1.105 which suggests a smaller, broader hill shape with almost no tails on either side.

6. **Close IBM Cognos Viewer.**

Keep Report Studio open for the next demo.

Results:

By interpreting the table in the descriptive statistics report, you were able to form an initial picture of the bank loan data.

Explore Statistical Charts

- You can generate a graphical representation of your data using the following charts:
 - Histogram
 - Q-Q plot
 - Boxplot

Histograms display the counts (frequencies) of values falling in ranges of equal length along the x-axis.

Q-Q plot (quantile-quantile plot) produces a chart with data values on the horizontal axis plotted against expected normal distribution on the vertical axis. When the points form a curve, it indicates a departure from the expected norm.

Boxplot provide a convenient way of examining the shape of a data distribution, and finding outliers.

Histograms and Q-Q plots are useful for assessing normality.

Histogram can show bars of number of students who achieved each examination grade.

Q-Q plot can be plotted against other distributions beyond just the normal distribution.

Boxplot is also known as box and whisker chart because of the appearance of the chart.

INTERACTION - Draw (Freehand Line): Draw a **Bell Curve** with a vertical line intersection to illustrate symmetry and normality.

Histogram - draw a bar chart-like diagram to illustrate the distribution of examination.

Q-Q plot - draw an X-Y axis and a line sloping up and to the right at a 45 degree angle which represents expected results. Then plot some dots to create a curve that deviates from the 45 degree line.

Boxplot - draw a box whisker plot and explain min, max, lower and upper quartile, median.

Demo 2: Create Statistical Charts

Purpose:

Using the DVD player data you want to use descriptive statistics to analyze measures of distribution. You will confirm your quantitative analysis by creating a histogram chart and a boxplot chart to visualize the DVD player rating distribution.

Server: localhost
 User/Password: brettonf/Education1!
 Studio: Report Studio
 Package: DVDPLAYER (located at Public Folders > Samples > Statistics > Packages)
 Report Type: Statistics

Task 1. Create a histogram chart.

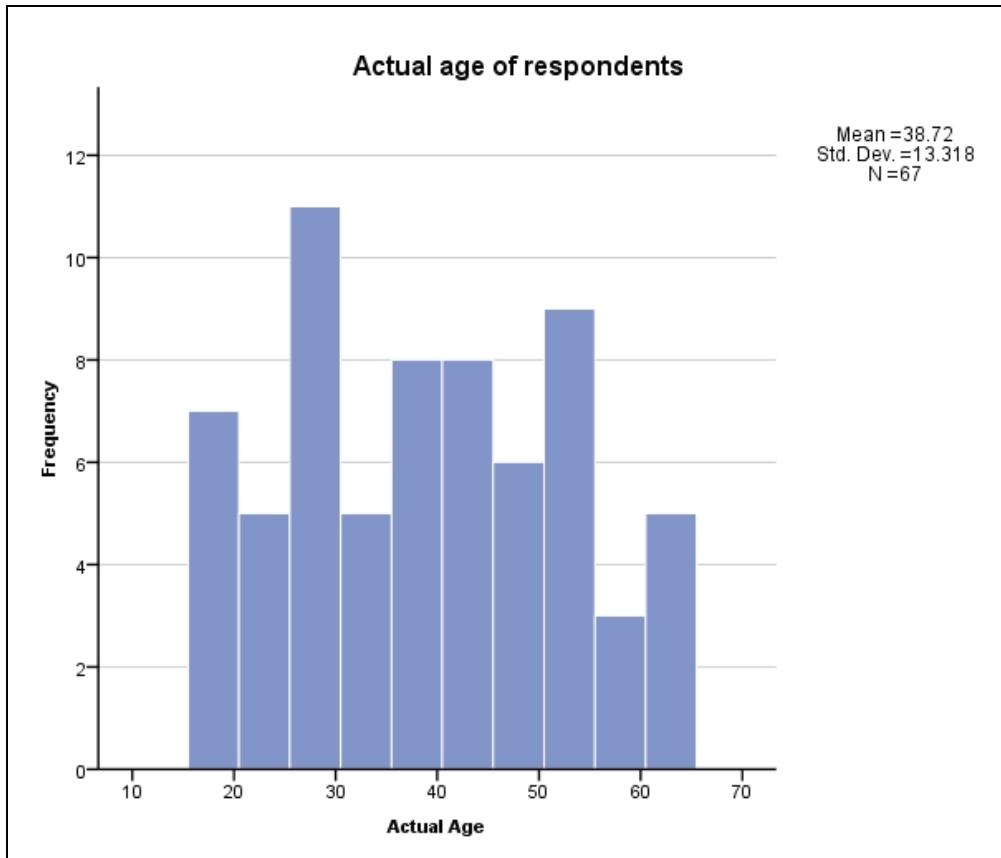
You will create a histogram chart using the variable Years with current employer.

1. In **Report Studio**, create a **New** report, and click **No** to saving the previous report.
2. Click **Statistics** report type, and then click **OK**.
3. Expand **Descriptive Statistics**, click **Histogram**, and then click **OK**.
4. In the navigation pane, expand **DVDPLAYER**, then drag **Actual Age** to the **Analysis variable** drop zone, and then click **Next**.
5. Drag **ID** to the **Cases variable** drop zone, and then click **Next**.
6. Under **Titles**, in the **First line** text box, type **Actual Age of respondents**.
7. Click **Finish**.

When using dimensional data, since it is structured differently, you may have to use a different technique to add cases to your statistical object. For example, you may need to exit the wizard to insert calculated dimensional sets from a dimensional data source.

8. On the toolbar, click **Run Report**.

The results appear as follows:



The histogram chart confirms what the measures of distribution showed us in the descriptive report. The positive skewness value of .116 told us that the distribution was normal with a slight pull to the left, as indicated by the largest group of respondents being in the 25-30 year range. The negative kurtosis value of -1.105 told us that the bell shape was short and spread out through the age ranges.

You also see that a majority of the data is distributed between 25 and 55 years. This visual chart information was also represented quantitatively in the standard deviation where you learned that 68% of the data was included fell between 25 and 52 years of age.

9. Close **IBM Cognos Viewer**.

Task 2. Create a boxplot chart.

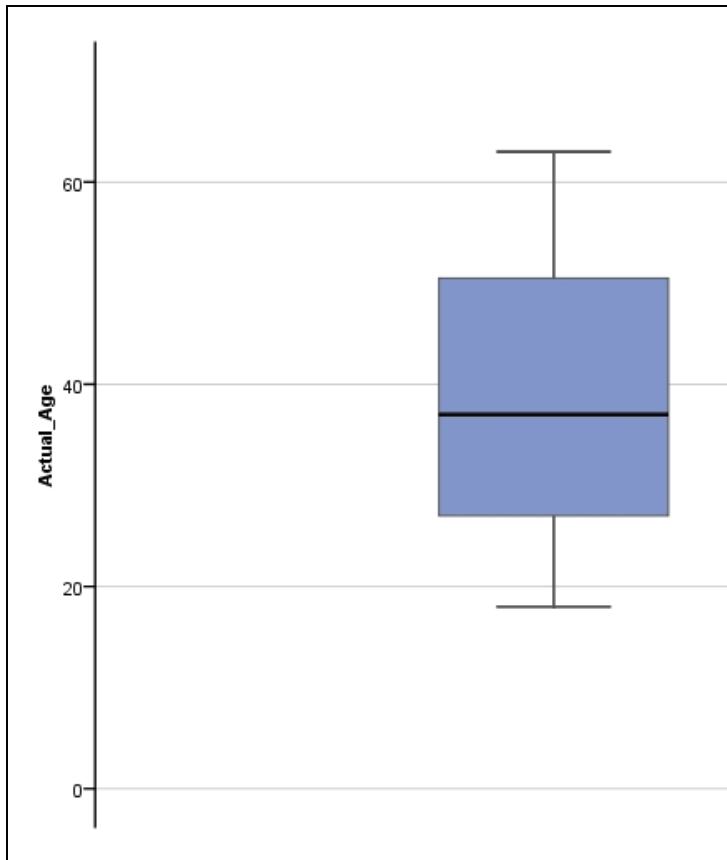
You will create a box plot chart using the variable Years with current employer.

1. In **Report Studio**, create a **New** report, and click **No** to saving the previous report.
2. Click **Statistics** report type, and then click **OK**.
3. Expand **Descriptive Statistics**, click **Boxplot**, and then click **OK**.
4. In the navigation pane, expand **DVDPLAYER**, click **Actual Age** and drop it in the **Analysis variable** drop zone, and then click **Next**.
5. Click **ID** and drop it to the **Cases variable** drop zone, and then click **Finish**.

When using dimensional data, since it is structured differently, you may have to use a different technique to add cases to your statistical object. For example, you may need to exit the wizard to insert calculated dimensional sets from a dimensional data source.

6. On the toolbar, click **Run Report**.

The results appear as follows:



The blue box represents 50% of the cases. It is the values that lie between the 25th percentile and the 75th percentile. This range, which is represented by the length of the box, is the inner quartile range. The horizontal black line represents the mean of 38.72 years. The spacings between the different parts of the boxplot indicate the degree of dispersion and skewness in the data.

The T bar that extends above the box is referred to as an inner fence or whisker. Most boxplots have a T-bar extending above and below the box, as you see here, which also indicates a normal distribution.

The T-bar extends to 1.5 times the height of the box or, if no case/row has a value in that range, to the minimum or maximum values. If the data are distributed normally, approximately 95% of the data are expected to lie between the inner fences.

If there were values lying outside of the inner fences, they would be represented as circles or stars along with the case number in each case. The circles represent outlier values that are between 1.5 and 3 inner quartile ranges away from the box. The asterisks represent extreme values that are more than 3 inner quartile ranges away.

There is no outlying or extreme data values in this sample population.

Leave Report Studio open for the Workshop.

Results:

Using the DVD player data you confirmed many of the descriptive statistics by analyzing a histogram chart and boxplot chart.

Summary

- At the end of this course, you should be able to:
 - discuss statistical report types
 - examine descriptive statistics
 - explore statistical charts

INTERACTION - Check Sticker: Check mark each objective as it is summarized.

Workshop 1: Create a Descriptive and Statistical Chart Report

A local hospital wants to analyze daily discharge of patients to adjust their staffing throughout the week. The staffing manager has asked for statistical reports to become familiar with the weekly discharge patterns.

To accomplish this, you must do the following:

- Using the DISCHARGEDATA, create 3 Descriptive Statistics reports:
 - Summary Descriptive Statistics
 - Histogram chart
 - Boxplot chart

Descriptive Statistics/Basic Descriptive Statistics:

- Summary descriptive statistics
- Include measures of distribution in the report
- Analysis variables: Average Daily Discharge
- Cases variable: ID
- Select Skewness and Kurtosis, in addition to all preselected statistics

Histogram chart:

- Analysis variables: Average Daily Discharge
- Case variable: ID

Boxplot chart:

- Analysis variables: Average Daily Discharge
- Cases variable: ID

For more detailed information outlined as tasks, see the Task Table section.

For the final results, see the Workshop Results section that follows the Task Table section.

Workshop 1: Task Table

Task 1: Create a descriptive statistics report.	
Where to Work	Hints
Report Studio\ File menu	<ul style="list-style-type: none"> • Package: DISCHARGEDATA • Create a new report, choose Statistics, expand Descriptive Statistics, and select Basic descriptive statistics.
Insertable Objects pane\work area	<ul style="list-style-type: none"> • Analysis variables: Average Daily Discharge • Cases variable: ID • Select Skewness and Kurtosis
Task 2: Create a histogram chart.	
Where to Work	Hints
Report Studio\ File menu	<ul style="list-style-type: none"> • Package: DISCHARGEDATA • Create a new report, choose Statistics, expand Descriptive Statistics, select Histogram.
Insertable Objects pane\work area	<ul style="list-style-type: none"> • Analysis variables: Average Daily Discharge • Cases variable: ID

Task 3: Create a boxplot chart.

Where to Work	Hints
Report Studio\ File menu	<ul style="list-style-type: none"> • Package: DISCHARGEDATA • Create a new report, choose Statistics, expand Descriptive Statistics, select Boxplot.
Insertable Objects pane\work area	<ul style="list-style-type: none"> • Analysis variables: Average Daily Discharge • Cases variable: ID

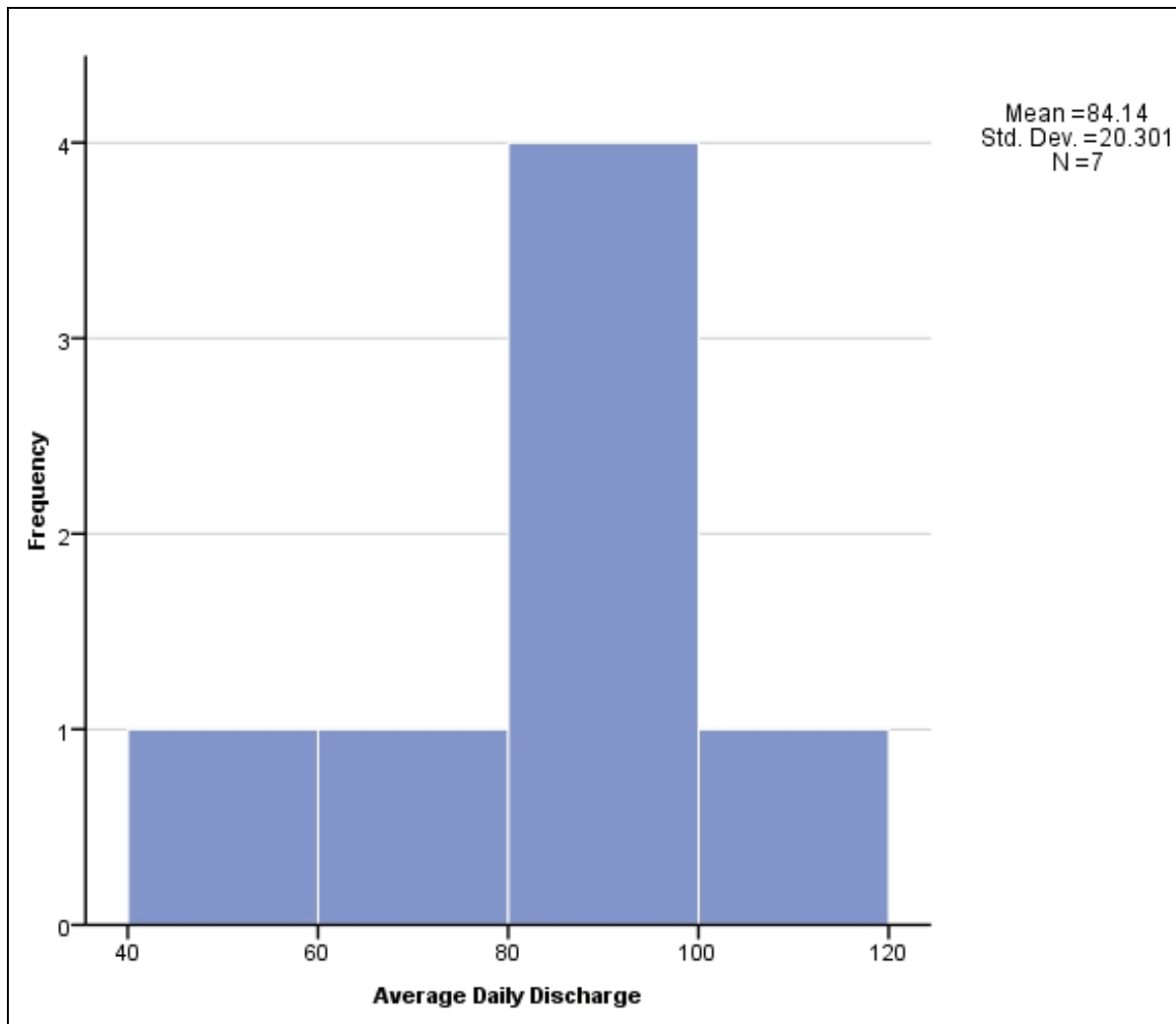
- If you need more information to complete a task, see the Step-by-Step Instructions section at the end of the Workshop.

Workshop 1: Workshop Results

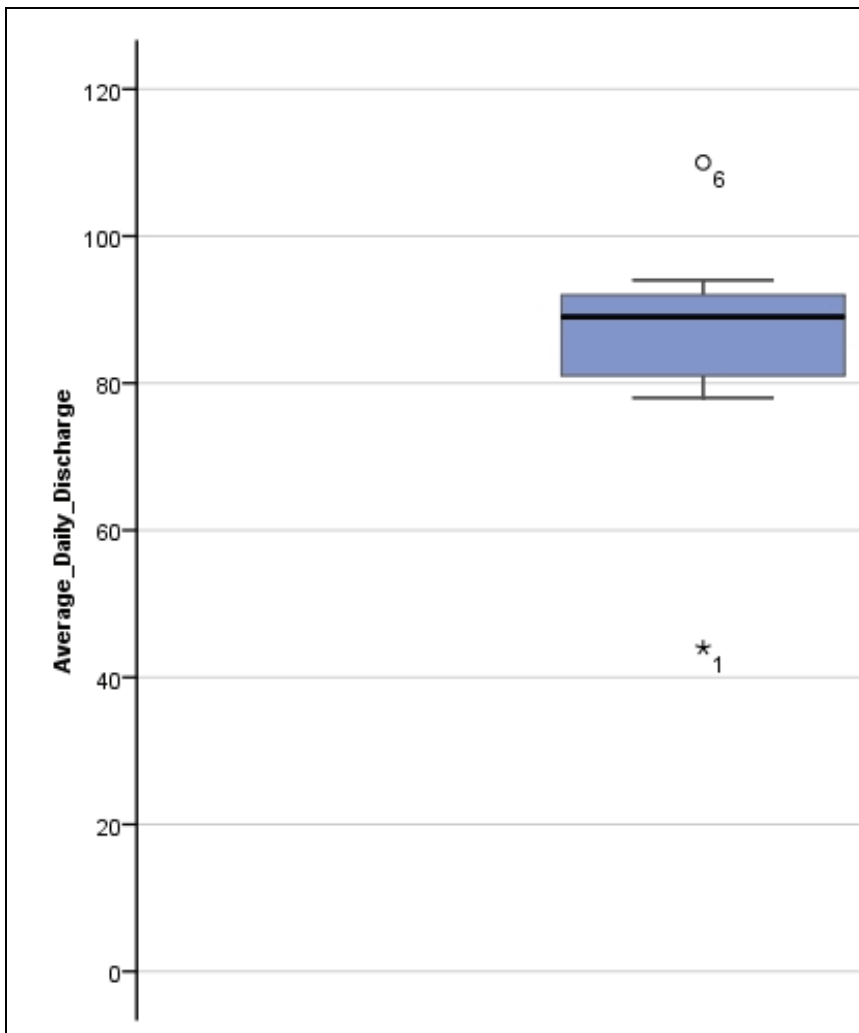
After completing Task 1, Step 10, the results appear as follows:

Descriptive Statistics	
	Average Daily Discharge
Mean	84.14
Std. Deviation	20.301
N	7
Median	89.00
Kurtosis	2.997
Std. Error of Kurtosis	1.587
Skewness	-1.293
Std. Error of Skewness	.794
Minimum	44
Maximum	110

After completing Task 2, Step 6, the results appear as follows:



After completing Task 3, Step 6, the results appear as follows:



Workshop 1: Step-by-Step Instructions

Server: localhost
User/Password: brettonf/Education1!
Studio: Report Studio
Package: DISCHARGEDATA
Report type: Statistics / Descriptive Statistics

Task 1. Create a descriptive statistics report.

1. In **Report Studio**, create a **New** report, and click **No** to saving the previous report.
2. Click the **Package** ellipsis, navigate to **Samples/Statistics/Packages**, click **DISCHARGEDATA**, and then click **OK**.
3. Click **Statistics** report type, and then click **OK**.
4. Expand **Descriptive Statistics**, click **Basic Descriptive Statistics**, and then click **OK**.
5. Ensure **Summary descriptive statistics** is selected, and then click **OK**.
6. On the **Create Summary Descriptive Statistics** window, in the left pane, expand **DISCHARGEDATA**.
7. Click **Average Daily Discharge**, drop it in the **Analysis Variables** drop zone, and then click **Next**.
8. Click **ID** and drop it to the **Cases variable** drop zone, and then click **Next**.
9. On the **Specify the statistics to display** page, select **Skewness** and **Kurtosis** check boxes, leave the other default selections, and then click **Finish**.

10. On the toolbar, click **Run Report**.

For Number of Phone lines Open for Orders, take note of the:

- Mean _____
- Minimum _____
- Maximum _____
- Skewness _____
- Kurtosis _____

Does the data suggest outlying or extreme data?

What would you guess the bell-shape resembles, a pointy bell or a hill?

Where would you guess the distribution lies?

11. Close **IBM Cognos Viewer**.

Task 2. Create a histogram chart.

1. In **Report Studio**, create a **New** report, and click **No** to saving the previous report.
2. Click **Statistics** report type, and then click **OK**.
3. Expand **Descriptive Statistics**, click **Histogram**, and then click **OK**.
4. In the navigation pane, expand **DISCHARGEDATA**, click **Average Daily Discharge** and drop it in the **Analysis variable** drop zone, and then click **Next**.
5. Click **ID** and drop it to the **Cases variable** drop zone, and then click **Finish**.
6. On the toolbar, click **Run Report**.

The distribution is pulled to the right creating a longer tail to the left.

7. Close **IBM Cognos Viewer**.

Task 1, Step 10:

Does the data suggest outlying or extreme data? Possibly, the mean and median are different (84 vs. 89). Also, the mean (84) lies closer to the maximum value (110), than the minimum value (44).

What would you guess the bell-shape resembles, a pointy bell or a hill? A bell-shape, because the kurtosis value is positive.

Where would you guess the distribution lies? To the right, with a tail to the left, due to the negative skewness value.

Notice that N=7, which means the sample size was only 7 data points. The data consists of 7 discharge averages for each day of the week. You can see this by running a list report of ID, Day of the week, and Average Daily Discharge.

Task 3. Create a boxplot chart.

1. In **Report Studio**, create a **New** report, and click **No** to saving the previous report.
2. Click **Statistics** report type, and then click **OK**.
3. Expand **Descriptive Statistics**, click **Boxplot**, and then click **OK**.
4. In the navigation pane, expand **DISCHARGEDATA**, click **Average Daily Discharge** and drop it in the **Analysis variable** drop zone, and then click **Next**.
5. Click **ID** and drop it to the **Cases variable** drop zone, and then click **Finish**.
6. On the toolbar, click **Run Report**.

The blue box represents 50% of the data, from the 25th percentile at the bottom of the box to the 75th percentile at the top of the box. The mean lies in the upper portion of the blue box, which represents the skewness to the right you noted in the histogram chart

There are T-bars (whiskers) extending from the bottom and the top of the box, reaching to There is one data value that is an outlier, as indicated by the circle. This value lies with 1.5 and 3 IQRs (inner quartile ranges). There is also an extreme value, as indicated by the asterisk, which lays more than 3 IQRs from the end of the box. This extreme value explains the difference between the mean (84) and the median (89) that you noted in Task 1, Step 9.

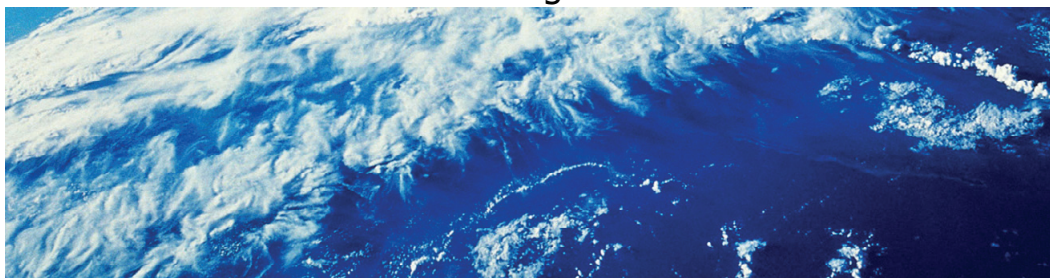
7. Close IBM Cognos Viewer, and all browser windows.

When using dimensional data, since it is structured differently, you may have to use a different technique to add cases to your statistical object. For example, you may need to exit the wizard to insert calculated dimensional sets form a dimensional data source.



Use Additional Report Building Techniques

IBM Cognos BI



Business Analytics

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Objectives

- At the end of this course, you should be able to:
 - enhance report design with report objects
 - reuse objects within the same report
 - share layout components among separate reports
 - discuss report templates
 - choose options to handle reports with no available data

If you intend to teach this module, students should be familiar with:

- Report Studio Basics
- List reports
- Crosstab reports
- Calculations
- Filters

Suggested modules to reference:

- Introduction to the Reporting Application
- Create List Reports
- Create Crosstab Reports
- Extend Reports Using Calculations
- Focus Reports Using Filters

INTERACTION - Star Sticker: Use the star sticker to highlight each objective as it is introduced.

Enhance Report Design

- When creating a report, keep in mind that reports have:
 - horizontal bands
 - vertical bands
 - data frame objects (lists, crosstabs, charts, etc.)

If information applies to the entire report and you want it to appear on every page, place it in the header or footer.

When information runs in horizontal bands, use a block to hold the objects.

Reports may also have headers and footers. Determine what objects to use when building a report based on the kind of information you want to display, and how you want it to appear.

When information runs vertically, such as text beside an image, use a table to organize the objects.

INTERACTION - Whiteboard: Ask the students for examples of things that they read and write them down on the whiteboard. Reports should emulate those documents and ads that we are comfortable with. Allow our audiences to want to read and use our reports.

Enhance Report Design (cont'd)

- To ensure professional results remember to:
 - use padding, margins, and blocks to create white space
 - set properties on the highest level item
 - avoid fixed size objects

Padding on bottom of block

Gross Profit per Product
For more information, please contact...

bottom margin

Gross Profit per Product
For more information, please contact...

Properties applied to an object will also be applied to any child items; therefore, it is best to set styling properties at the highest level.

Avoid fixed size objects because they are rigid and may not work with your overall design.


An empty block does not add space between objects. The block must contain an object, or you must specify the padding of the block to use the block for spacing.

Property Inheritance is the passing of parent attributes to child items. Use the Select Ancestor button on the Properties pane title bar to help determine the level at which to apply settings.

Applying properties at the highest level saves time and effort. For example, if you set the font type for a list object then all items in the list or added to the list will inherit the same font.

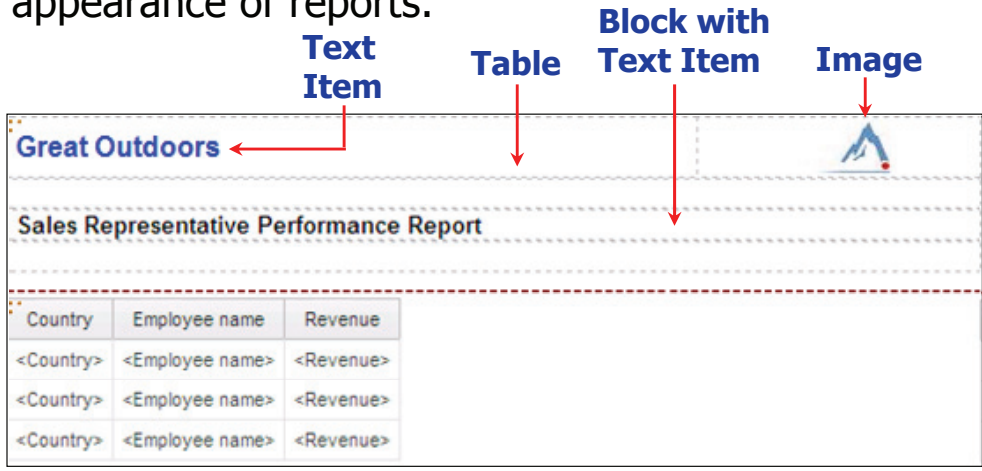
If objects have borders, use margins to make the objects look spaced apart.

INTERACTION - Whiteboard: Create a hierarchical diagram illustrating the above Instructor Note.

Business Analytics 

Add Objects

- Add, format, and organize objects to enhance the appearance of reports.




The diagram shows a report layout with four objects highlighted by red arrows and labels:

- Text Item**: Points to the text "Great Outdoors" in the top left.
- Table**: Points to a table below the title.
- Block with Text Item**: Points to a block containing the title "Sales Representative Performance Report".
- Image**: Points to a small image of a mountain peak in the top right.

The table below the title has the following structure:

Country	Employee name	Revenue
<Country>	<Employee name>	<Revenue>
<Country>	<Employee name>	<Revenue>
<Country>	<Employee name>	<Revenue>


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You can format items and objects to change their size, shape, location, and behavior according to your needs.

You can use text items to communicate relevant information about the report to its users.

You can add a background image to a data frame object like a list or crosstab, a cell in a table, or to the entire page. Students should be made aware that a background image obscures the data in the report to some degree.

INTERACTION - Markup > Laser Tool: In the slide above, point out the block items above and below the Sales Representative Performance Report title. Tell the students that unless these blocks are populated with a Text Item, Layout Calculation, or some other content, the blocks will collapse at run time.

Organize Objects Using Tables

- Add a table to a page to hold and organize objects such as titles, list, images, and charts.

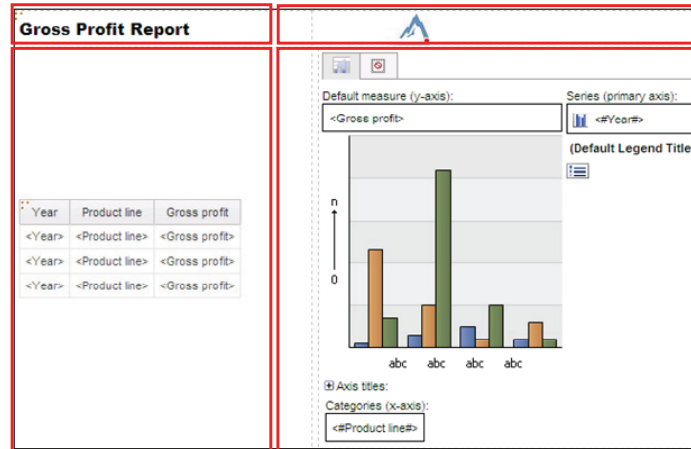


Table with 2 rows and 2 columns

Cognos.
software

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You can use tables to assist with the spatial layout of report types and layout objects.

You need tables to control where objects are placed. Unlike some graphics software, you cannot place objects anywhere on the work area.

INTERACTION - Toolbar Emoticons > Raise Hand: Ask the students what kind of layout and formatting are used in the standard List report template.

Break a Report into Sections

- Create separate lists, crosstabs, or charts for specific query items by creating a section header.

**Data
Sectioned
by
Country**

Australia

Product line	Year	Revenue
Camping Equipment	2007	\$13,007,383.98
Personal Accessories	2005	\$2,131,381.68

Austria

Product line	Year	Revenue
Camping Equipment	2007	\$5,009,903.66
Personal Accessories	2004	\$7,431,795.17

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software**

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Create sections in a report to show grouped information in separate report objects. This makes information easier to locate, and lets you view data for one group of items at a time

When you run the report, separate sections appear for each value.

Creating sections is similar to grouping on a query item. The difference is that section headers and footers appear outside the list, crosstab, or chart.

To remove section headers or footers, click the header or footer, and then from the Structure menu, click List Headers & Footers. Clear the appropriate checkboxes. The item will disappear from the report

Convert a List to a Crosstab

- Condense a report and view data from a different perspective by converting a list to a crosstab.

Convert a List Report to a Crosstab Report



Product line	Year	Revenue
<Product line>	<Year>	<Revenue>
<Product line>	<Year>	<Revenue>
<Product line>	<Year>	<Revenue>

Revenue	<#Year#>	<#Year#>
<#Product line#>	<#1234#>	<#1234#>
<#Product line#>	<#1234#>	<#1234#>

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The list columns you select become columns and nested columns in the crosstab, and the unselected columns become rows and nested rows.

If you have one measure, it becomes the cells of the crosstab. If you have more than one measure, they appear as columns.

Reuse Objects within the Same Report

- You can change the contents of a reused object by overriding the child components and replacing them with other objects.

Formatted block containing text

Header →

Product Line Sales by Year			
Australia			
Revenue	2005	2006	2007
Camping Equipment	9,752,591.01	19,175,957.2	13,007,383.98
Golf Equipment	4,094,643.54	8,482,438.67	6,502,474.22
Mountaineering Equipment	2,691,279.15	5,861,253.12	5,380,587.79
Outdoor Protection	600,956.77	367,636.38	171,750.41
Personal Accessories	8,467,573.03	13,912,451.77	10,830,992.1

Footer →

Please contact Sales Manager for more details

Copy of the header block containing different text

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If you reuse an object that contains other objects, you can replace the child objects with a different object to customize your report.

To change the contents of a reused object, you must override the child object using the Properties pane.

Demo 1: Reuse Objects within the Same Report

Purpose:


You have been asked to add some descriptive information to a sectioned report. The report must include a title on each page describing the contents of the report, and information about whom to contact if users have any questions.

Server: localhost
User/Password: brettonf/Education1!
Studio: Report Studio
Package: Go Data Warehouse (query)
Report Type: Blank
Folder: Sales and Marketing (query)
Namespace: Sales (query)

Task 1. Open the report.


1. In **Report Studio**, click **File, Open**, and navigate to **Public Folders\B5158\Module 11_Use Additional Report Building Techniques\Demo 1 Start**, and then click **Open**.

Task 2. Section data and convert to a crosstab.

1. Click the **Country** column, and then on the toolbar, click **Section** .
There is now a separate list for each country.

- On the toolbar, click **Run Report**.

The report appears sectioned at the Country level. However it is large and difficult to read.

- Close **IBM Cognos Viewer**, and then click the **Year** column.
- On the toolbar, click **Pivot List to Crosstab** , and then click **Run Report**.

A section of the results appear as follows:

Australia				
Revenue	2005	2006	2007	
Camping Equipment	9,752,591.01	19,175,957.2	13,007,383.98	
Golf Equipment	4,094,643.54	8,482,438.67	6,502,474.22	
Mountaineering Equipment	2,691,279.15	5,861,253.12	5,380,587.79	
Outdoor Protection	600,956.77	367,636.38	171,750.41	
Personal Accessories	2,131,381.68	5,081,517.25	4,261,477.85	

Austria				
Revenue	2004	2005	2006	2007
Camping Equipment	7,431,795.17	9,163,419.93	13,471,100.17	9,731,648.11
Golf Equipment	3,411,617.12	4,465,999.47	6,234,620.98	5,009,903.66
Outdoor Protection	824,026.84	640,221.64	294,954.55	130,312.39
Personal Accessories	2,198,565.39	2,458,706.23	3,754,115.48	3,182,909.11
Mountaineering Equipment		2,615,339.21	4,594,176.48	3,926,993.16

Because you selected Year before you converted the list into a crosstab, it now appears as columns. Product line appears on rows, and Revenue, because it can be aggregated, appears as measures on the report. You can now see the data more clearly.


- Close **IBM Cognos Viewer**.

Task 3. Add a header and footer, and add objects to the header.

1. From the **Structure** menu, point to **Headers & Footers**, click **Page Header & Footer**, select the **Header** and **Footer** check boxes, and then click **OK**.
2. In the **Insertable Objects** pane, click the **Toolbox** tab, and then drag a **Block** into the page header.
3. Drag a **Text Item** to the block in the header, type **Product Line Sales by Year** and then click **OK**.

You now want to format the object you added to the header.

Task 4. Apply style to the header block and text.

1. In the header, click to the right of the text item to select the block object.
2. On the toolbar, click the arrow next to **Background Color** , and then click **Teal**.
3. In the header, click the text item to select it, and then on the toolbar change the font to **Arial Black, 16 pt**, with a **Foreground Color** of **White**.

The result appears as follows:

Product Line Sales by Year		
<Country>		
Revenue	<#Year#>	<#Year#>
<#Product line#>	<#1234#>	<#1234#>
<#Product line#>	<#1234#>	<#1234#>

The report now contains a header with the title you specified. It has been formatted according to the properties you have set.

You now want to reuse the objects that you created and formatted to avoid repeating steps in building the footer.

Task 5. Specify unique object names.

1. In the header, click to the right of the text to select the block object.
2. In the **Properties** pane, under **Miscellaneous**, in the **Name** property, type **Block**, and then press **Enter**.
3. Repeat steps 1 and 2 to name the text item object in the header to **Text**.

Task 6. Reuse the header block and change the text in the footer.

1. From the **Toolbox** tab, drag a **Layout Component Reference** into the footer.
To reuse an object in the footer you need to specify the object to be referenced. You can choose from the two objects to which you have previously assigned names, as well as the list containing Country, and the crosstab. In this case, you will select the block object because it also contains the text item object.
2. Under **Available components to reference**, click **Block**, and then click **OK**.
The footer now contains the same object and formatting as the header.
3. Click the text in the footer.

In the Properties pane you can only select the layout component reference object and not the block or text item objects individually. This is because it is referencing the block object in the header. Remember, the block object in the header also contains the text item object.

You want to change the text in the footer to contain contact information.

In Task 5, if you try to assign a name that is not unique, Report Studio displays a warning message informing you that the name must be unique.

If you select an element of the report, such as a column in a list, and want to deselect it, press Esc on your keyboard.

4. In the **Properties** pane, click **Overrides**, and then click the **ellipsis**.
5. In the **Overrides** dialog box, select the **Text** check box, and then click **OK**.
The layout component reference object in the footer no longer contains text. Only the referenced block object remains.
6. Drag a **Text Item** into the footer block, type **Please contact Sales Manager for more details.** and then click **OK**.
7. Click the text item object in the footer, and then change the font to **12 pt, Bold**.
8. On the toolbar, click **Run Report**, and then scroll down to view the footer.

The results appear as follows:

Brazil				
Revenue	2004	2005	2006	2007
Camping Equipment	9,494,552.59	11,613,962.19	14,080,643.24	9,643,337.16
Golf Equipment	4,510,465.93	4,620,832.48	6,185,100.85	4,733,649.19
Outdoor Protection	1,020,194.1	673,818.65	290,958.46	123,682.98
Personal Accessories	2,541,678.59	2,684,077.49	3,826,304.17	3,166,376.1
Mountaineering Equipment		2,987,555.24	4,556,862.2	3,780,853.8
Please contact Sales Manager for more details.				

9. Close **IBM Cognos Viewer**.

Leave Report Studio open for the next demo.

Results:

You enhanced the Product Line Sales by Year report by adding a header and footer. To build the footer and to minimize your work, you reused objects from the header.

This is a simplified example of reusing report objects. This technique might best be used to reuse an object with numerous format properties applied.

You can also reuse objects between different reports and this will be discussed later in this module.

Share Layout Components Among Separate Reports

- In Report Studio you can reuse layout components in different reports.
- You can choose to update shared layout objects manually or automatically.

Instead of creating new layout components (such as page headers) for each report, you can create an object in one report and then reuse it in different reports. Reusing layout components saves you time and lets you apply standard company formatting to multiple reports.

By default, reused objects are automatically updated each time the report is run. This means that when you open or run a report containing a reused object, if the object has been changed in the source report, this change will automatically be applied in your report.

If you want a reused object to be updated manually instead of automatically, in the report where the object is reused, select the object, and then in the Properties pane, change the Embed property from Reference to Copy.

In the source report, be sure to name each layout component you want to reuse in other reports. When you reuse a layout object in a different report, you can override child objects within this object (such as a text item in a page header object) if the child objects have been named in the source report.

One effective strategy is to create a report containing all the objects you want to reuse in different reports, and then use it as an object library.

Shared objects are stored in the layout component cache. The cache contains the definitions of the shared objects. When you open a report that contains layout component reference objects, the report(s) containing the shared layout objects is opened and the definitions are copied into the Report Studio cache. Object names cannot contain white space and must begin with a letter. When you override child objects, you can replace the child object with any other object, not just an object of the same type. For example, if the child object is a text item, you can replace it with an image.


Demo 2: Reuse Layout Components in a Different Report

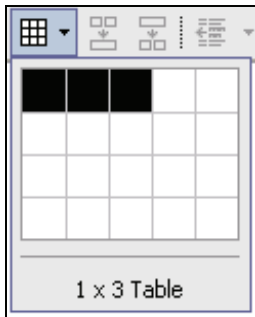
Purpose:

To save time when creating new reports, you will create one containing a standard page header that can be used in many reports. Next, you will create one that will reuse this page header.

Server: localhost
 User/Password: brettonf/Education1!
 Studio: Report Studio
 Package: Go Data Warehouse (query)
 Report Type: Blank
 Folder: Sales and Marketing (query)
 Namespace: Sales (query)

Task 1. Create a report with a page header that can be reused in other reports.

1. From the **File** menu, click **New** and click **No** when prompted to save the report.
2. On the toolbar, click **Insert Table** , and then click a **1 x 3 Table**, as shown below:



Because you want to reuse this table as a page header in other reports, you will name the table object.

Instructor Notes

It is important to use Internet Explorer for this demo. Using Firefox may cause an error.

3. Click the **Container selector** in the upper left cell to select the entire table.
4. In the **Properties** pane, under **Miscellaneous**, in the **Name** cell, type **StandardPageHeader** and then press **Enter**.

You want to add your company logo to the left side of the page header.

5. In the **Insertable Objects** pane, click the **Toolbox** tab, and then drag an **Image** object to the left cell of the table.
6. Click the **Image** you just added to the left cell, and then in the **Properties** pane, under **URL Source**, double-click the **URL** cell.
7. In the **Image URL** dialog box, click **Browse**, navigate to **http://localhost:88/ibmcognos/samples/images**, and then double-click **go_logo_small.jpg**.
8. Click **OK**.

You want to add a text item in the middle of the page header that can be used to add a report title.


9. From the **Insertable Objects** pane, drag a **Text Item** to the center cell of the table, and then click **OK** to close the **Text** dialog box.

You will not specify the text to be used because this will be different for each report. You will name this text object so that it can be overridden when the page header is reused in other reports.

10. Click the **Text Item** you just added, in the **Properties** pane, under **Miscellaneous**, in the **Name** cell, type **ReportTitle**, and then press **Enter**.

Task 2. Add additional details to the page header and save the report.

You want to add date and time information to the report header.

1. From the **Insertable Objects** pane, on the **Toolbox** tab, drag a **Table** object to the right cell of the table.
2. In the **Number of columns** box, type **1**, in the **Number of rows** box, type **2**, and then click **OK**.
3. From the **Insertable Objects** pane, on the **Toolbox** tab, drag a **Layout Calculation** object to the top cell of the table you added in step 2.
4. In the **Report Expression** dialog box, click the **Functions** tab , expand the **Report functions** folder, and then drag **AsOfDate** to the **Expression Definition** pane.
5. Click **OK** to close the **Report Expression** dialog box.

You want the time to appear in the bottom-right corner of the page header.

6. From the **Insertable Objects** pane, on the **Toolbox** tab, drag a second **Layout Calculation** object to the bottom cell of the table you added in step 2.
7. Click the **Functions** tab, expand **Report Functions**, and then drag **AsOfTime** to the **Expression Definition** pane.
8. Click **OK** to close the **Report Expression** dialog box.
9. From the **File** menu, click **Save**.
10. Navigate to **My Folders**, in the **Name** box, type **Layout Library**, and then click **Save**.

Task 3. Create a second report that reuses the standard page header.

1. On the toolbar, click **New**, click **List**, and then click **OK**.
2. In the page header, select the **Block** object, and then press **Delete**.
3. In the **Insertable Objects** pane, click the **Toolbox** tab, and then drag a **Layout Component Reference** object to the page header area.
4. In the **Component Reference** box, click **Another report**, click the **ellipsis**, and then navigate to **My Folders**.
5. Click **Layout Library**, and then click **Open**.
6. Under **Available components to reference**, click **StandardPageHeader**, and then click **OK**.

The page header from the Layout Library report appears. You want to customize the report.

7. In the header, click the **Layout Component Reference** object, and then in the **Properties** pane, double-click the **Overrides** cell.

The Overrides dialog box appears. Because you gave the report title text object a distinct name, you can now override its contents in the shared page header.

8. Select the **ReportTitle** check box, and then click **OK**.
9. In the **Insertable Objects** pane, from the **Toolbox** tab, drag a **Text Item** to the center cell of the header, in the **Text** dialog box, type **Quantity By Order Method** and then click **OK**.
10. Click the **Quantity By Order Method** title you just added, and then on the toolbar, change the font to **Arial**, and the size to **22 pt**.

Task 4. Add data to the list report and format the report.

1. In the **Insertable Objects** pane, click the **Source** tab, expand the **Sales and Marketing (query)** folder, and then expand the **Sales (query)** namespace.
2. Add the following query items to the list:
 - **Order method** → **Order method type**
 - **Sales fact** → **Quantity**
3. Save the report in the **My Folders** folder as **Quantity By Order Method**.
4. On the toolbar, click **Run Report**.

The results appear as follows:

Quantity By Order Method		Jul 22, 2010 8:32:19 PM
Order method type	Quantity	
E-mail	3,642,659	
Fax	1,480,014	
Mail	953,055	
Sales visit	6,813,412	
Special	636,802	
Telephone	7,252,844	
Web	68,458,305	

The header you created in the Layout Library report displays the title you added to this report.

5. Close **IBM Cognos Viewer**.


Task 5. Modify the shared page header and observe the results.

1. In the page header of the list report, click the **Layout Component Reference** object.

In the Properties pane, the Embed property is set to Reference. This means any changes made to the shared page header in the Layout Library source report will be automatically applied in this report. You will now modify the shared page header in the source report.

2. Open the **Layout Library** report.
3. In the page header, click **AsOfTime()**, and then press **Delete**.
4. On the toolbar, click **Save**.
5. Open the **Quantity By Order Method** report.

The result appears as shown below:

 Quantity By Order Method <%AsOfDate ()%>	
Order method type	Quantity
<Order method type>	<Quantity>
<Order method type>	<Quantity>
<Order method type>	<Quantity>

The change you made to the page header in the source report has automatically been applied to this shared page header.

Task 6. Manually update changes to the shared page header.

You decide you do not want changes to the page header in this report to be applied automatically when the header changes in the source (Layout Library) report.


1. In the **Quantity By Order Method** report, in the page header, click the **Layout Component Reference** object.
2. In the **Properties** pane, click the **Embed** cell, and then in the list, click **Copy**.
3. Save the report.
4. Open the **Layout Library** report.
5. In the page header, in the left cell, cut the **Image** object, and then paste it into the center cell of the table.

6. In the table, in the center cell, cut the **Text** object, and then paste it into the left cell.
7. Save the report.
8. Open the **Quantity By Order Method** report.

Although you switched the order of the image and text objects in the source report, this change is not reflected in the page header in this report. To make the page header in the Quantity By Order Method report consistent with the standard page header you created in the Layout Library report, you will now manually update the shared page header.

9. In the report, in the page header, right-click the **Layout Component Reference** object, and then click **Update Component Copy**.

The result appears as shown below:

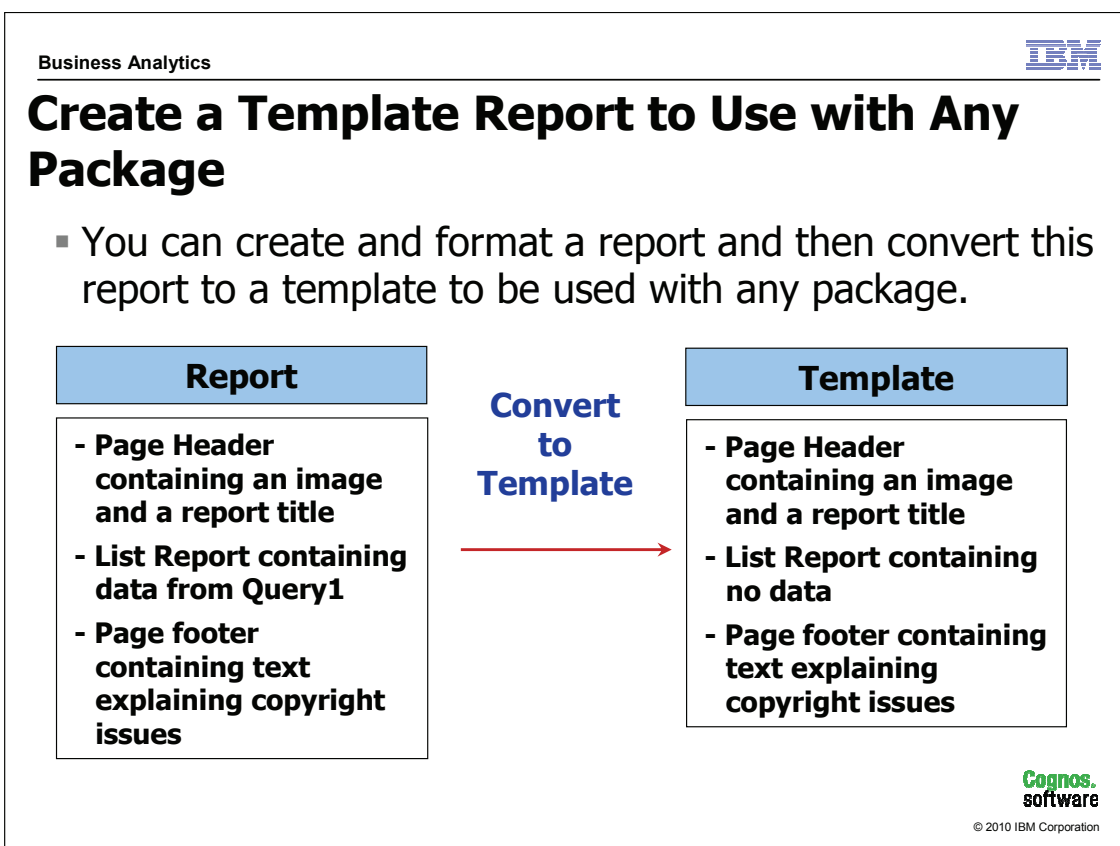
Quantity By Order Method			<%AsOfDate (%)%>
Order method type	Quantity		
<Order method type>	<Quantity>		
<Order method type>	<Quantity>		
<Order method type>	<Quantity>		

The page header is updated with the changes made in the Layout Library.

Leave Report Studio open for the next demo.

Results:

You created and reused a standard page header and then compared automatically and manually updating the reused page header when it changed in the source report.



When you convert a report to a template, Report Studio removes any query-related data from the report. For example, Report Studio will remove all data items, calculations, and filters.

Report Studio removes all query-related data so that the template can then be used with any package, rather than only with the package used to create the template.

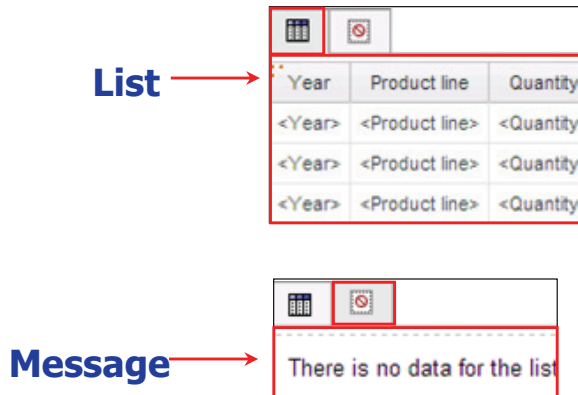
After you convert a report to a template, the Source tab in the Insertable Objects pane will not display any package data.

To create a report using a template, first open the package you require so this package data appears on the Source tab in the Insertable Objects pane. Next, open the template and add data from the package you previously opened.

To convert a report to a template, from the File menu, click Convert To Template.

Handle Reports with No Data

- When a query returns no data, you can provide alternate content or remove the data frame from the report.



Each data frame has a property called No Data Contents. When this is set to Yes, a new frame appears that you can populate with a text message, or an alternate data frame, and so on.

Each data frame also has a Render Page when Empty property. When this property is set to No, the page does not render.

Demo 3: Explore Options for Reports that Contain No Data

Purpose:

You want to create a report with three pages showing different methods of handling no data being returned. The first page will show default data handling, the second page will not display when the list is empty, and the third page will generate a custom message to replace the empty container.

Server:	localhost
User/Password:	brettonf/Education1!
Studio:	Report Studio
Package:	Go Data Warehouse (query)
Report Type:	List
Folder:	Sales and Marketing (query)
Namespace:	Sales (query)

Task 1. Open the report.

1. In **Report Studio**, click **File, Open**, and navigate to **Public Folders\B5158\ Module 11_Use Additional Report Building Techniques\Demo 3 Start**, and then click **Open**.
2. In the **Insertable Objects** page, click the **Toolbox** tab, and then drag a **Table** to the page below the crosstab.
3. Clear the **Maximize width** check box, and click **OK**.
4. Click the left table cell, and in the **Properties** pane, under **Box**, double-click **Padding**.
5. In the **right** box, type **10**, and then click **OK**.

6. Click the list **Container Selector** and drag the list into the **left** table cell.
7. Click the crosstab **Container Selector** and drag the crosstab into the **right** table cell.
8. In the **Insertable Objects** page, click the **Toolbox** tab, and then drag a **Text Item** to the left of the list but within the **left** table cell.
9. Type **List:**, and then click **OK**.
10. In the **Insertable Objects** page, click the **Toolbox** tab, and then drag a **Text Item** to the left of the crosstab, within the **right** table cell.
11. Type **Crosstab:** then click **OK**.
12. Click to the right of the text for the crosstab and then click on **TOP** in the toolbar.
13. Click the **Block** inside the page header and click **Left** in the toolbar.
14. Double-click the text in the page header and type **Page 1 -Default Behavior**

The results appear as follows:

Page 1 -Default Behavior		
List:		
Year	Product line	Revenue
<Year>	<Product line>	<Revenue>
<Year>	<Product line>	<Revenue>
<Year>	<Product line>	<Revenue>
Crosstab:		
Revenue	<#Product line#>	<#Product line#>
<#Year#>	<#1234#>	<#1234#>
<#Year#>	<#1234#>	<#1234#>

Task 2. Add filters to your list and crosstab.

1. Click the crosstab **Container Selector**.
2. In the properties pane under the **Data** category, click **Query** and select **Query1** from the drop down list.
3. Click anywhere in the list, click **Filters**, **Edit Filters**, click **Add**, click **Advanced**, and then click **OK**.
4. In the **Available Components** pane, click on the **Data Items** tab and double click **Year** to add it to the expression.
5. At the end of the expression, type **=?pyear?**, and then click **OK**.
6. Add another detail filter for **Product line** **=?ppline?**, and then click **OK** twice.

Task 3. Create additional pages.

1. Point to **Page Explorer**, and click **Report Pages**.
2. Right click **Page1** and click **Copy**.
3. Right click in the **Report Pages** pane and click **Paste** to create **Page2**.
4. Repeat step 3 to create **Page3**.

Task 4. Configure a page that does not display when the list is empty.

You do not want page 2 to render when the list is empty.

1. Double-click **Page2**, click the text in the page header and type **Page 2 -Do Not Render Page if No Data is Returned in the List**.
2. Click the lists **Container Selector** to select the entire list.
3. From the **Property** pane, under **General**, set the **Render Page when Empty** property to **No**.

Task 2, Step 2, by associating both reporting objects to the same query, only one set of filters is required. This provides a simpler and quicker data retrieval.

Task 5. Configure a page with a custom No Data Handler that replaces an empty container with a message.

You want to display a custom message when the list or crosstab is empty.

1. Point to **Page Explorer**, and click **Page 3**.
2. Click the text in the page header and type **Page 3 -Show Custom Message when No Data is Returned**
3. Click the lists **Container Selector** to select the entire list.
4. From the **Property** pane, under **Conditional**, set the **No Data Contents** property to **Yes**.

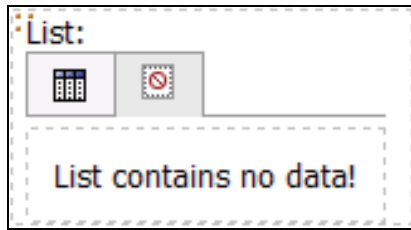
The No Data Contents property specifies whether to show the No Data Contents tab for the selected query frame. When set to Yes, you can specify on this tab what to show when there is no data. When set to No, the tab is hidden and the query frame reverts to the default behavior.

Your List should now appear as follows with a new No Contents Data tab.



- From the **Toolbox** tab, drag a **Text Item** object to the **No Contents Data** tab, type **List contains no data!**, and then click **OK**.

The results appear as follows:



- Click the crosstabs **Container Selector** to select the entire crosstab.
- From the **Properties** pane, set the **No Data Contents** property to **Yes**.
- From the **Toolbox** tab, drop a **Text Item** object into the **No Contents Data** tab, type **Crosstab contains no data!**, and then click **OK**.

Task 6. Add a prompt page.

- From **Page Explorer**, click **Prompt Pages**.
- From the **Insertable Objects** pane, drag a **Page** to the **Prompt Pages** pane.
- Double-click **Prompt Page1** that you just created.
- Insert a **Table** of **2 rows** by **2 columns** into the work area.
- Insert a **Text Item** in the top left cell, and type **Select a Product Line:** press the space bar, and then click **OK**.
- Insert a **Text Item** in the bottom left cell, type **Select a Year:** press the space bar, and then click **OK**.
- Insert a **Value prompt** in the cell to the right of **Select a Product Line:**.
- Select **Use existing parameter**, from the list, click **ppline**, click **Next**, and then click **Finish**.
- Insert a **Value prompt** in the cell to the right of **Select a Year:**.
- Select **Use existing parameter**, from the list, select **pyear**, click **Next**, and then click **Finish**.

Task 7. Run report displaying data, and with no data to display.

1. On the toolbar, click **Run Report**.
2. When prompted, next to **Select a Product Line** click **Camping Equipment**., next to **Select a Year**, click **2004**, and then click **Finish**.

The results for page 1 appear as follows:

Page 1 -Default Behavior				
List:			Crosstab:	
Year	Product line	Revenue	Revenue	Camping Equipment
2004	Camping Equipment	332,986,338.06	2004	332,986,338.06

Since all of the queries in this report are filtered by the same parameters, all lists and crosstabs on the three report pages should look the same when data is returned.

3. Click **Page Down** to see the **Page 2 -Do Not Render Page if No Data is Returned** in the **List** page.
4. Click **Page Down** to see the **Page 3 -Show Custom Message When No Data is Returned** page.

Notice that all three pages appear with a list and crosstab in each.

5. In **IBM Cognos Viewer**, click **Run** to run the report again.

Task 7, Step 2: The page numbers refer to the pages in Page Explorer and not in the HTML view.

6. When prompted, select the product line **Mountaineering Equipment**, select the year **2004**, and then click **Finish**.

The results for page 1 appear as follows:

Page 1 -Default Behavior		
List:	Crosstab:	
Year	Product line	Revenue

Notice how the individual pages are affected in the report since there is no data for 2004 for the product line Mountaineering Equipment.

The first page shows default behavior for the list and crosstab when there is no data returned. The list only shows the column titles, where the crosstab is not even rendered.

7. Click **Page Down**.

Notice that Page 2 -Do Not Render Page if No Data is Returned in the List page did not display at all. This list contains no data and the list property Render Page When Empty is set to No, so the page did not render. You are now looking at Page 3 -Show Custom Message When No Data is Returned page. Both the list and crosstab are showing the custom message we created when no data is returned.

The results appear as follows:



8. Close **IBM Cognos Viewer**.

Leave Report Studio open for the workshop.

Results:

You created a report with three pages showing different methods of handling no data being returned. The first page showed default data handling, the second page did not display when the list was empty, and the third page generated a custom message to replace the empty container.

Summary

- At the end of this course, you should be able to:
 - enhance report design with report objects
 - reuse objects within the same report
 - share layout components among separate reports
 - discuss report templates
 - choose options to handle reports with no available data

INTERACTION - Check Sticker: Check off each objective as it is summarized.

Workshop 1: Analyze Product Quantities Sold by Month

The Production Department of the Great Outdoors Company has asked you to prepare a report that shows the quantity of products sold in each month of 2006 for all product lines, to help estimate production requirements for next year. The report must be broken into separate sections for each product line so that products from each line can be analyzed separately. The report name and logo must appear on each page of the report.

To create the report, you must perform the following high-level tasks:

- Navigate to Public Folders\B5158\Module 11_Use Additional Report Building Techniques.
- Open Workshop 1 Start.
- Section data and convert to crosstab.
- Filter data so that only 2006 data is displayed and sort month data in ascending order.
- Edit title and add image to the header block with the Company name and logo (cover2.jpg).
- Add a reference to the block and its components to report footer.

For more detailed information outlined as tasks, see the Task Table section.

For the final results, see the Workshop Results section that follows the Task Table section.

Workshop 1: Task Table

If you need more information to complete a task, see the Step-by-Step

Task 1: Open the report.	
Where to Work	Hints
Toolbar	<ul style="list-style-type: none"> Navigate to Public Folders\B5158\Module 11_Use Additional Report Building Techniques.
File > Open	<ul style="list-style-type: none"> Open Workshop 1 Start.
	<ul style="list-style-type: none"> Section Product line and pivot to crosstab on Month
Task 2: Filter and sort month data.	
Where to Work	Hints
Toolbar	<ul style="list-style-type: none"> Year = 2006.
	<ul style="list-style-type: none"> Sort Ascending.
Task 3: Edit the title and add an image to the block.	
Where to Work	Hints
Toolbox	<ul style="list-style-type: none"> Name block: Company Block
Properties pane	<ul style="list-style-type: none"> Text Item object in block: <ul style="list-style-type: none"> Great Outdoors Company.
	<ul style="list-style-type: none"> Image object to the right URL: cover2.jpg.

Task 4: Add a reference to the block and its components.

Where to Work	Hints
Footer of report design page Toolbox Properties pane	<ul style="list-style-type: none">• Add Layout Component Reference object to footer• Reference: block

If you need more information to complete a task, see the Step-by-Step instructions at the end of the Workshop.

Workshop 1: Results

The report appears as follows:

Great Outdoors Company

Camping Equipment

Quantity	April	August	December	February	January	July	June	March	May	November	October	September
Canyon Mule Carryall	12,263	13,634	14,053	14,289	8,316	10,736	12,114	9,066	8,338	12,297	12,820	14,826
Canyon Mule Climber Backpack	19,257	14,320	14,273	14,619	12,842	16,259	16,200	11,736	15,094	13,424	25,226	15,063
Canyon Mule Cooler	20,507	24,545	23,146	22,877	19,432	24,692	41,131	17,811	38,797	22,328	22,241	20,667
Canyon Mule Extreme Backpack	5,839	3,839	3,442	3,854	3,276	4,146	3,444	4,359	3,506	3,500	3,342	3,371
Canyon Mule Journey Backpack	10,596	15,299	6,794	6,441	6,525	6,607	7,272	5,220	7,365	6,205	6,737	6,196
Canyon Mule Weekender Backpack	7,157	8,128	8,119	12,144	9,116	8,789	8,619	6,009	8,587	7,660	7,889	7,309
EverGlow Butane	2,901	3,159	3,134	3,063	2,688	3,433	3,480	2,496	3,004	2,982	3,934	3,577
EverGlow Double	1,267	1,359	1,264	1,317	1,265	1,431	1,472	1,024	1,348	1,309	1,352	1,216
EverGlow Kerosene	7,594	8,226	8,632	8,043	7,831	9,081	10,247	6,207	8,494	7,753	7,594	7,314
EverGlow Lamp	21,657	25,027	21,790	24,991	19,951	25,905	26,985	29,936	22,887	22,734	23,238	23,331
EverGlow Single	13,431	21,658	13,920	13,903	13,068	15,108	17,964	11,575	14,296	12,857	13,990	14,597
Firefly 2	13,527	14,661	15,404	15,651	13,781	15,465	18,297	11,537	15,265	13,076	14,546	13,524
Firefly 4	6,741	7,717	7,257	7,446	6,335	7,907	8,610	5,819	7,219	6,939	6,977	7,345
Firefly Extreme	4,364	4,170	4,568	4,533	3,859	4,306	4,661	3,138	4,674	4,065	4,329	3,883
Firefly Lite	13,098	14,792	15,777	16,300	13,576	14,992	17,062	10,787	15,059	14,615	13,592	13,138
Firefly Mapreader	18,469	21,046	20,693	19,952	18,546	21,389	24,010	15,215	19,063	19,473	20,596	18,390
Firefly Multi-light	6,514	7,780	7,968	8,022	6,874	8,241	8,724	5,340	7,675	7,106	7,220	7,466
Flicker Lantern	7,519	6,149	5,930	4,152	4,694	4,774	5,424	3,490	6,969	5,400	5,981	4,683
Hibernator	12,514	12,830	12,986	13,328	20,169	14,222	13,986	9,875	12,067	12,195	14,608	11,889
Hibernator Camp Cot	7,515	9,009	5,977	9,098	9,697	5,625	10,762	7,716	10,379	7,952	8,069	11,386

Great Outdoors Company

Top Page up Page down Bottom

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Workshop 1: Step-by-Step Instructions

Task 1. Open the report.

1. In **Report Studio**, click **File**, **Open**, and navigate to **Public Folders\B5158\Module 11_Use Additional Report Building Techniques\Workshop 1 Start**, and then click **Open**.
2. Click the **Product line** column, and then click **Section**.
3. Click the **Month** column, and then click **Pivot List to Crosstab**.

Task 2. Filter and sort month data.

1. Click anywhere in the crosstab, click **Filters**, **Edit Filters**, click **Add**, click **Advanced**, and then click **OK**.
2. Expand **Sales and Marketing (query)**, **Sales (query)**, **Time**, and then double-click **Year**.
3. At the end of the expression, type **= 2006**, validate, and then click **OK** twice.
4. In the crosstab, click the **Month** column header, click **Sort**, and then click **Ascending**.

Task 3. Edit the title and add an image to the block.

1. Click the **Block** in the page header.
2. In the **Properties** pane, under **Miscellaneous**, click the cell beside the **Name** property and type **Company Block** and then press **Enter**.
3. Double click the **Text Item** inside the page header and in the **Text** dialog box, type **Great Outdoors Company** and then click **OK**.
4. From the **Insertable Objects** pane, on the **Toolbox** tab, drag an **Image** to the right of the text item.
5. Click the **image** to select it, and then in the **Properties** pane, double-click the cell beside **URL**, and then click **Browse**.
6. Click **cover2.jpg**, and then click **OK** twice to close each dialog box.

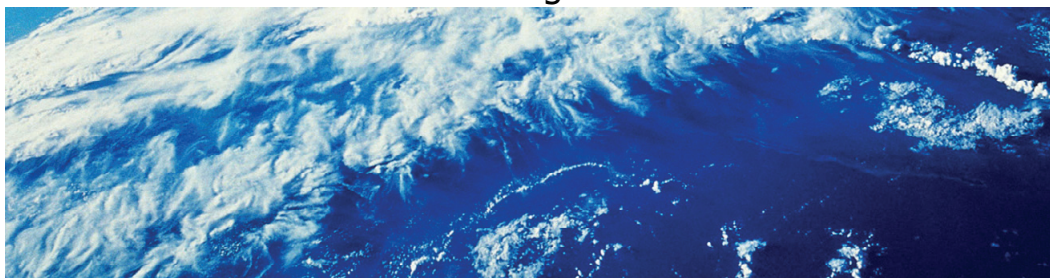
Task 4. Add a reference to the block and its components.

1. From the **Insertable Objects** pane, drag a **Layout Component Reference** into the page footer.
2. Under **Available components to reference**, click **Company Block**, and then click **OK**.
3. On the toolbar, click **Run Report**.
4. At the bottom of the first page, click **Page down**.
5. Close **IBM Cognos Viewer**, close **Report Studio** without saving changes, and then close **Internet Explorer**.



Customize Reports with Conditional Formatting

IBM Cognos BI



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Objectives

- At the end of this course, you should be able to:
 - create multi-lingual reports
 - highlight exceptional data
 - show and hide data
 - conditionally render objects in reports
 - conditionally format one crosstab measure based on another

If you intend to teach this module, students should be familiar with:

- Report Studio basics
- Lists reports
- Crosstab reports
- Filters
- Prompts

Suggested modules to reference:

- Introduction to the Reporting Application
- Create List Reports
- Create Crosstab Reports
- Focus Reports Using Filters
- Focus Reports Using Prompts

INTERACTION - Star Sticker: Use the star sticker to highlight each objective as it is introduced.

Change Displays Based on Conditions

- Design a report to appear in different colors, languages, or formats depending on conditions in the report.

Display conditional text depending on language

Rapport sur les Produits

Lignes de produits	Types de produit	Produits	Profit brut
Accessoires personnels	Couteaux	Canif à deux lames	3 515 023,35
		Canif à lames multiples	10 351 705,25
		Canif à une lame	13 119 405,03
		Couteau de chasse	5 186 942,12
		Couteau de chasse Plus	4 839 887,58
		Gadget de poche	10 900 653,76
		Gadget Max	10 414 645,73
	Couteaux		58 328 262,82

Display conditional styles depending on data

Cognos.
software

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You can change the display of a report based on conditions you specify using conditional formatting.

This is useful for identifying data that exceeds or falls short of goals, running the same report in different languages, or eliminating sections of a report that are not relevant according to standards you create.

3 Steps for Conditional Formatting

1. Create a variable

- Define the condition and create values

2. Assign the variable to an object in the report

- Properties pane, under Conditional, assign variable to object

3. Apply formatting to object based on condition value

- Select specific value condition and apply formatting to object

This is a summary page of the 3 steps used to perform conditional formatting.

Some things to consider when performing conditional formatting are:

INTERACTION - Whiteboard: Reiterate the following concepts by writing the on the whiteboard:

- What report layout object will the formatting be performed on?
- What conditions will the formatting be based on?
- What formatting will be applied to the report layout object?

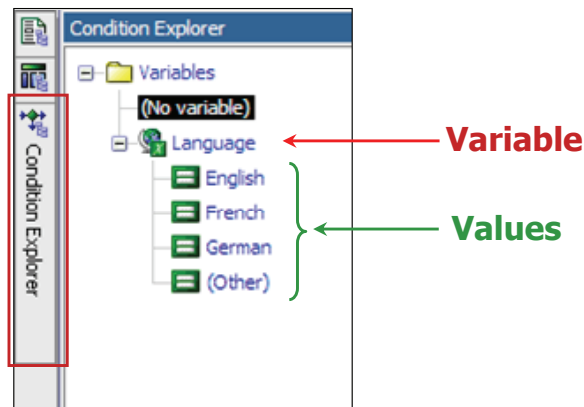
Depending on your needs you might want to change the text displayed in a report (such as a report title) or you may want to change the appearance of the report itself (such as colors or the layout). Report Studio lets you change both.

In the slide example, the report title is conditionally formatted to display a different report name (Product Report translated into a different language) depending on the language in which the report is run. The data has a conditional style applied to it so that if Gross Profit (or in French, Benefice brut) is greater than \$10,000,000 then the numbers will appear in bold green. If the Gross Profit is less than \$3,000,000 then they appear in red italics

INTERACTION - Toolbar Emoticons > Yes/No: Ask the participants if they could use conditional formatting.

Step 1. Create a Variable

- Create variables and values to decide what element of the report will determine the change and the possible outcomes.



This step is performed in Condition Explorer.

Boolean variables are used if there are only two possible outcomes, where the values will be Yes or No.

String variables are used if there is more than one outcome, based on string values you will specify.

Language variables are used when the values are different languages.

The variable determines what will change in the report. For example, the report will vary depending on revenue, product line or the language in which the report is run.

The values define the possible scenarios or outcomes for the variable. For example, revenue is either above \$150,000 ('yes') or not ('no'), product line is 'Camping Equipment', 'Golf Equipment', or the language may be 'Chinese' or 'Dutch', and so on.

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Step 1. Create a Variable (cont'd)

- Define the condition and create values.

Boolean

Expression Definition:
 [[Gross profit]>150000

↓

Values:
 Yes / No

String

Expression Definition:

```
if ([Revenue]>1000000)then('high')else if ([Revenue]<25000) then ('low') else if ([Revenue] between 300000 and 600000) then ('medium')
```

↓


Values:
 high / medium / low / other

Report Language

Languages
☐ Finnish (Finland)
☒ French
☐ French (Belgium)

↓

Values:
 French / other


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If you create a boolean or string variable, you must define the condition.

If you create a language variable, you do not need to define the condition. You must choose the languages you want to support.

In the slide example for the string variable, revenue will be deemed 'high' if it is more than \$1,000,000 or 'low' if it is less than \$25,000.

The string variable's condition does not need to test all possible cases or the language variable hold all the possible languages because of the 'other' value. For example, in the slide string Expression Definition above, revenue between \$25,000 and \$300,000 is 'other'

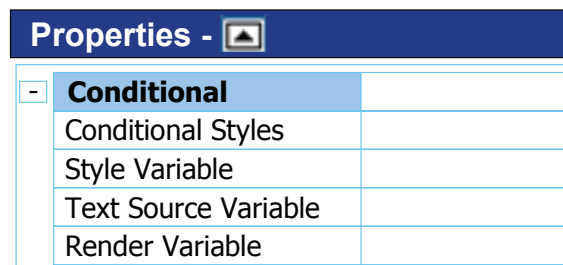
INTERACTION - Markup > Laser Tool: Highlight each variable type as you discuss the following topics

Creating a condition is similar to creating a filter. You use query items and operators to create the criteria used to determine possible outcomes

- When you create a boolean variable, the values of yes and no are automatically created.
- The Languages dialog box appears automatically when you create a Report Language Variable. The languages you select become your values.
- When you create a string variable, you will need to create a value that corresponds with the possible outcomes used in the condition. These values will be used to format your report.

Step 2. Assign the Variable to an Object in the Report

- Select the condition style or variable that is appropriate to the object that you want to change based on the variable you want to assign to it.



Conditional Styles: Add conditional styles to highlight data in your report. Based on set ranges

Style Variable: Specifies a variable based on which the object can be conditionally styled.

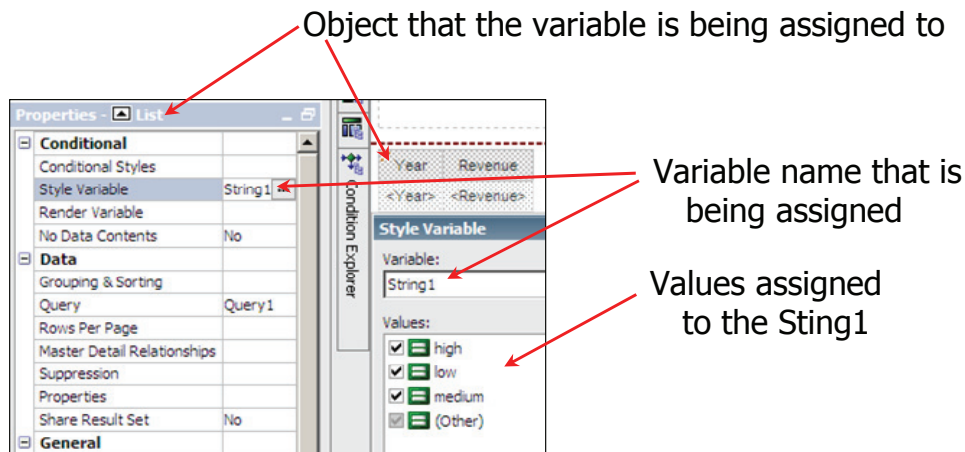
Text Source Variable: Specifies a variable based on which the text can be chosen.

Render Variable: Specifies a variable based on which the object can be conditionally rendered.

INTERACTION - AppShare: This would be a good opportunity to show the student how to use the help. Select an option from the conditional category and click on the "?" in the upper Right-hand corner of the tool bar.

Step 2. Assign the Variable to an Object in the Report (cont'd)

- Once you have created a variable, assign the variable to the object that you wish to conditionally format.




Select your object in the report layout that you want to add conditional formatting to. This step is performed in Page Explorer.

After you have created your variable, you must define how the report will appear for each value. To do this, select the text or part of the report that will vary, and then apply the variable to it using the Properties pane.

When you apply the variable, the values for which you can perform conditional authoring appear. By default Report Studio selects all the values assuming you will format all of them. If you wish to create conditional formatting for only some values, you can deselect the others.

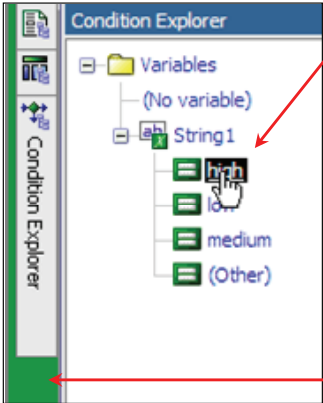
If you apply a language variable, an additional value called Other appears by default.

When you create a string or report language variable, and create or choose variables for it, an additional value called Other appears by default.

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Step 3. Apply Formatting to Object Based on Condition Value


- Select the condition value, and apply formatting to object




Select condition value

Color & Background	
Background Image	
Background Color	Green ...
Foreground Color	

Apply desired formatting to object based on condition value picked



Toolbar turns green when condition value is selected



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Once the report element has been designated as conditional, set the display for that value by modifying the report to appear the way you want it to look if that condition is satisfied.

This step is performed in Page Explorer.

This step does not apply when working with a Render Variable.

When you select a value in the Condition Explorer, the Explorer bar will turn green. This is to notify you that conditional formatting is turned on, and to remind you that all changes you make to the report only apply to the variable you selected.

After you have set the display for each value, turn the conditional formatting off by double-clicking the Explorer bar, or by selecting No Variable from the Condition Explorer.

Demo 1: Create a Multilingual Report

Purpose:

Your regional sales managers want to examine the gross profit for all of your products to promote the most profitable ones. Because this report will be distributed to offices in Germany, France, and the United States, you must run the report in different languages.



Server:	localhost
User/Password:	brettonf/Education1!
Studio:	Report Studio
Package:	Go Data Warehouse (query)
Report Type:	List
Folder:	Sales and Marketing (query)
Namespace:	Sales (query)

Task 1. Open the report

1. In **Report Studio**, click **File, Open**, and navigate to **Public Folders\B5158\Module 12_Customize Reports with Conditional Formatting\Demo 1 Start**, and then click **Open**.
2. On the toolbar, click **Run Report** to examine the report.
3. Close **IBM Cognos Viewer**.

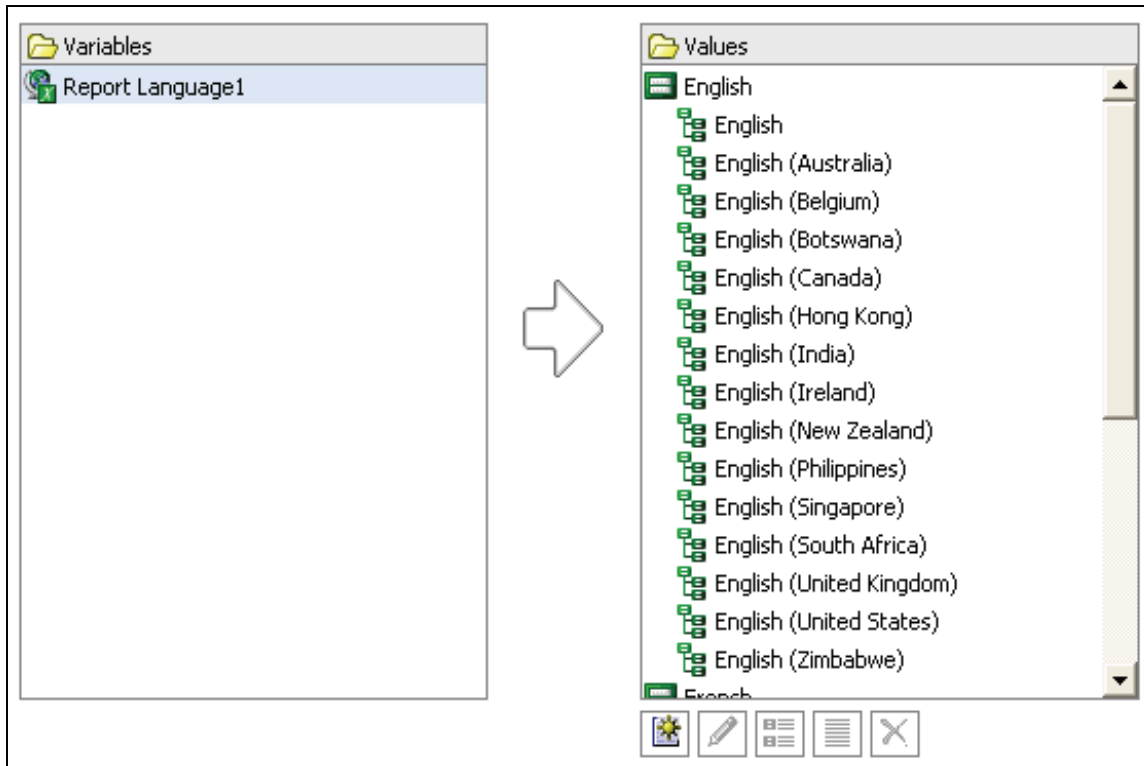
You will apply conditional formatting to the header text so that the report title will appear in the language in which the report is run.

Task 2. Create a language variable and choose the languages.

1. On the **Explorer** bar, point to **Condition Explorer** .
The Condition Explorer pane shows that there are currently no variables for this report.
2. Click **Variables**.
3. From the **Insertable Objects** pane, drag a **Report Language Variable** to the **Variables** pane.
4. Scroll through the list and select the check boxes beside all of the **English**, **French**, and **German** languages, and then click **OK**.
5. In the **Values** box, Shift+click **English** and **English (Zimbabwe)** and then click **Group Values** .

6. Repeat step 5 to group all **French** languages together, and all **German** languages together.

The results appear as follows:



The report now has one variable with three grouped values, one for each language in which the report will run. Because you created a language variable, the expression is created for you.

7. In the **Properties** pane, under **Miscellaneous**, in the **Name** box, type **Language**, and then press **Enter**.
8. On the toolbar, click **Back**.

Task 2, step 6. There are 15 English languages, six French, and five German. You want to select all of these languages so that we can group them together. That way you only have to format the report for three grouped values, rather than for each language individually.

If the report has been developed in English, then it is not necessary to have English values because the report will not be translated into English.

INTERACTION - Toolbar Emoticons > Raise Hand: If the report is being translated in to multiple languages, what might you want to do to the English version to set it apart from the default?

Task 3. Define the title as conditional text.

1. Double-click the header title text and type in **Product Report** then click **OK**.
2. Click the header block, and then click **Left**.
3. Click the title text, and then in the **Properties** pane, under **Conditional**, double-click **Text Source Variable**.

The Text Source Variable dialog box appears.

4. Under **Variable**, click **Language**.

The Values pane shows the three languages you chose, plus an option called Other. The three languages are selected by default so that you can use the Condition Explorer to perform conditional authoring for any of these three languages.

5. Click **OK**.

Task 4. Set the display for each value.

1. On the **Explorer** bar, point to **Condition Explorer**, and then click **English**.

The Explorer bar turns green to remind you that any changes you make to the report will apply to the value you selected. The previous title also disappears because you must specify the text for this value.

2. Double-click the title text, and type **Product Report**.
3. On the **Explorer** bar, point to **Condition Explorer**, and then click **French**.
4. Double-click the title text, type **Rapport sur les produits**, and then click **OK**.
5. On the **Explorer** bar, point to **Condition Explorer**, and then click **German**.
6. Double-click the title text, and then type **Produktbericht**, and then click **OK**.
7. Double-click the **Explorer** bar to turn the conditional formatting off.

Now that you have set the display for each value, you can run the report in various languages to see how the report will appear.

In order to run a report in different languages, the data source must be multi-lingual. Your browser must also be able to support multi-lingual characters, or else the characters will appear as boxes.

Task 4, step 7. You can also turn off conditional formatting by clicking No Variable in the Condition Explorer pane.

Task 5. Run the report in various languages.

1. On the toolbar, click **Run Report**.

Our report appears in English as this is our current default language. The report title appears as you created it for the English value. You will now run the report in French to see the results.

2. Close **IBM Cognos Viewer**, and then on the toolbar, click the down arrow beside **Run Report**.

You are able to render reports in HTML, PDF, Excel 2007, Excel 2002, Excel 2000 Single Sheet, Delimited Text (CSV), and XML formats. You want to use the default output option of HTML but would like to choose a language other than our current default.

3. Click **Run Options**, under **Language**, scroll down and select **French (France)**, then click **OK**, and then run the report.

A section of the results appear as follows:

Rapport sur les produits			
Lignes de produits	Types de produit	Produits	Profit brut
Accessoires personnels	Couteaux	Canif à deux lames	3 515 023,35
		Canif à lames multiples	10 351 705,25
		Canif à une lame	13 119 405,03
		Couteau de chasse	5 186 942,12
		Couteau de chasse Plus	4 839 887,58
		Gadget Max	10 414 645,73
		Gadget de poche	10 900 653,76
	Couteaux - Total		58 328 262,82
	Jumelles	Forestier	20 232 241,58
		Lynx 35	8 341 275,51
		Lynx 50	5 417 254,72
		Lynx Extra	8 224 341,06
		Lynx Mini	5 321 194,9
		Opéra	4 652 702,02
	Jumelles - Total		52 189 009,79

The report appears in French including the title you created.

4. Close **IBM Cognos Viewer**, and then repeat steps 2 to 5 to run the report in **German (Austria)**.

A section of the results appear as follows:

Produktbericht			
Produktreihe	Produkttyp	Produkt	Bruttogewinn
Accessoires	Ferngläser	Opera Vision	4.652.702,02
		Ranger Vision	20.232.241,58
		Seeker 35	8.341.275,51
		Seeker 50	5.417.254,72
		Seeker Extrem	8.224.341,06
		Seeker Mini	5.321.194,9
		Ferngläser - Total	52.189.009,79
	Messer	Doppelklinge	3.515.023,35
		Einfachklinge	13.119.405,03
		Jagdmesser	5.186.942,12
		Max Gizmo	10.414.645,73
		Multiklinge	10.351.705,25
		Pocket Gizmo	10.900.653,76
		Survival Jagdmesser	4.839.887,58
		Messer - Total	58.328.262,82

You want to return Report Studio to the original default language.

5. Close **IBM Cognos Viewer**.
6. Click the down arrow beside **Run Report**, and then click **Run Options**.
7. Under **Language**, scroll up, select **Default**, and then click **OK**.

Leave Report Studio open for the next demo.

Results:

Regional Sales managers can examine the gross profit for all of your products to promote the most profitable products. This report can be distributed to offices in German, French, and English speaking countries in the appropriate languages.

Demo 2: Highlight Exceptional Data

Purpose:

A manager wants to quickly identify revenue greater than \$20,000,000 and less than \$5,000,000 to identify high and low revenue-generating product types in all sales regions. You need to create a report that displays revenue data in different colors depending on revenue values.

Server: localhost
User/Password: brettanf/Education1!
Studio: Report Studio
Package: Go Data Warehouse (query)
Report Type: Crosstab
Folder: Sales and Marketing (query)
Namespace: Sales (query)

Task 1. Open the report and create a revenue variable.

1. In **Report Studio**, click **File, Open**, and navigate to **Public Folders\B5158\Module 12_Customize Reports with Conditional Formatting\Demo 2 Start**, and then click **Open**.

You will create a variable to define revenue as 'high' or 'low' if the amount is above or below specified amounts.

2. On the **Explorer** bar, point to **Condition Explorer**.
3. In the **Condition Explorer** pane, click **Variables**, and then drag a **String Variable** to the **Variables** pane.

Because you have created a string variable, you must specify the condition on which revenue will change, and then create values for the possible outcomes.

4. In the **Expression Definition** pane, type the following condition:

if ([Query1].[Revenue]>20000000) then ('high') else if ([Query1].[Revenue]<5000000) then ('low')

You can double-click Revenue in the Available Components pane to add it to the expression as you write it.

5. Click **Validate** to ensure the expression has no errors, and then click **OK**.
6. Under the **Values** box, click **Add**.
7. In the **Add** dialog box, type **high**, and then click **OK**.
8. Repeat steps 6 and 7 to add a second value called **low**.
9. In the **Properties** pane, under **Miscellaneous**, in the **Name** box, type **Revenue_high_low**, and then press **Enter**.
10. On the toolbar, click **Back**.

Now that you have created a variable and specified its values, you must format the revenue cells for each value.

Task 2. Define the measures as conditional and set the display for each value.

1. Click any of the **Revenue** cells in the crosstab, and then in the **Properties** pane click **Select Ancestor**, then click on **Crosstab Fact Cells**.
2. Under **Conditional**, double-click **Style Variable**.

The Style Variable dialog box appears.

3. In the **Variable** list, click **Revenue_high_low**, and then click **OK**.

The measures cells are now conditionally formatted using the variable you just created. You must now set the display for each value.

The values created in Task 1 steps 6-8 have to be spelled exactly as they are spelled in the expression definition for the variable.

4. On the **Explorer** bar, point to **Condition Explorer**, and then click **high**.
The Explorer bar turns green.
5. With the **Revenue** cells still selected, on the toolbar, click **Foreground Color**, click **Green**, and then click **Bold**.
6. Repeat steps 4 and 5 to change the font color for the low value to **Red**.
7. Double-click the **Explorer bar** to turn the conditional formatting off.
8. On the toolbar, click **Run Report**.

A section of the results appear as follows:

Revenue		Americas			
		2004	2005	2006	2007
Personal Accessories	Binoculars	8,848,023.06	9,284,403.09	11,564,283.97	9,698,328.44
	Eyewear	51,804,488.86	64,364,796.83	89,687,954.94	68,629,625.09
	Knives	11,328,869.94	10,661,897.75	15,047,283.69	10,513,594.42
	Navigation	15,667,887.05	13,943,283.78	19,757,626.39	14,382,780.56
	Watches	40,906,913.37	44,372,804.39	51,213,306.66	32,018,631.1
Mountaineering Equipment	Climbing Accessories		6,928,733.67	8,238,351.85	8,576,743.95
	Rope		8,065,619.48	13,952,404.12	11,568,118.68
	Safety		6,881,659.98	10,137,737.5	9,410,543
	Tools		10,178,540.49	16,831,986.21	12,356,958.95
Camping Equipment	Cooking Gear	18,885,808.93	20,265,504.57	22,792,659.65	16,933,277.29
	Lanterns	9,550,941.78	9,516,880.22	12,274,847.87	8,136,831.6
	Packs	20,705,015.1	25,822,181.45	35,164,708.35	24,019,882.74
	Sleeping Bags	19,652,376.81	23,629,479.94	29,724,358.26	19,755,089.84
	Tents	35,466,023.41	43,218,510.95	49,900,030.23	36,031,372.05
Outdoor Protection	First Aid	2,122,816.09	841,085.19	536,893.86	256,402.95
	Insect Repellents	5,872,450.6	3,410,019.19	1,644,331.12	634,775.13
	Sunscreen	3,324,848.67	2,937,932.68	980,915.8	440,176.4

You can see that some Camping Equipment product types generated high revenue over a four-year period in Central Europe, whereas Outdoor Protection generated low revenue. Notice that when the revenue condition is not satisfied (when it is neither high nor low) revenue appears in black.

9. Close **IBM Cognos Viewer**.

Leave Report Studio open for the next demo.

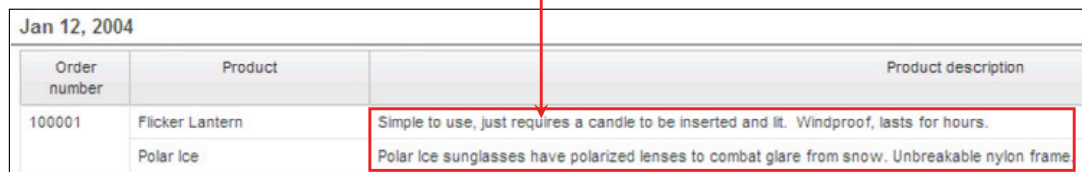
Results:

You created a report that compares product line revenue for all sales regions to quickly identify by color the product type revenues greater than \$20,000,000 and less than \$5,000,000.

Conditionally Render Objects in Reports

- Using conditional rendering, you can determine whether certain objects will be included in a report when the report is run.

At runtime, decide to include a product description column in the report



Jan 12, 2004		
Order number	Product	Product description
100001	Flicker Lantern	Simple to use, just requires a candle to be inserted and lit. Windproof, lasts for hours.
	Polar Ice	Polar Ice sunglasses have polarized lenses to combat glare from snow. Unbreakable nylon frame.

If objects are not rendered, they do not take up space in the report when it is run.

Conditional rendering is useful when your report contains sensitive data or data that may be relevant for some consumers but not for others

When conditional rendering is applied to a column in a list report, the conditional rendering applies to all portions of the column including the title, the body cells, and header and footer cells.

In the slide example, the product description column is rendered because the report was run in HTML format. An expression was created on the product description column to only render if the report output is HTML.

Demo 3: Create a Report with a Conditionally Rendered Column (Optional)

Purpose:

Some users want a report to include descriptions of each product, while others are familiar with the products and do not want these descriptions in the report. You will create a report that can be run with or without a column displaying product descriptions based on the format in which you run the report.

Server:	localhost
User/Password:	brettonf/Education1!
Studio:	Report Studio
Package:	Go Data Warehouse (query)
Report Type:	List
Folder:	Sales and Marketing (query)
Namespace:	Sales (query)

Task 1. Open the report

1. In **Report Studio**, click **File**, **Open**, and navigate to **Public Folders\B5158\Module 12_Customize Reports with Conditional Formatting\Demo 3 Start**, and then click **Open**.
2. On the toolbar, click on **Filters**, **Edit Filters**, click **Add**, click **Advanced**, and then click **OK**.
3. Create the following detail filter:
[Sales (query)].[Time].[Month key]=200401
4. Click **Validate**, and then click **OK** twice to close each dialog box.
5. In the page header, double-click the title text, type **Order Details** and then click **OK**.

Task 1, Step 4. The filter is applied to make the report run faster.

Task 2. Add a boolean variable.

1. Click the **Product description** column, click **Select Ancestor**, and then click **List Column** at the bottom of the list.
2. In the **Properties** pane, double-click the **Render Variable** cell.
3. In the **Variable** list, click **New boolean variable**, in the **New Variable** dialog box, type **ShowDescrip**, and then click **OK**.
4. Click the **Functions** tab, expand **Report Functions**, and then double-click **ReportOutput** to add it to the **Expression Definition** pane.
5. At the end of the expression, type **= 'HTML'**.
6. Click **Validate**, and then click **OK** twice to close each dialog box.

Task 3. Run the report in HTML and then in PDF.

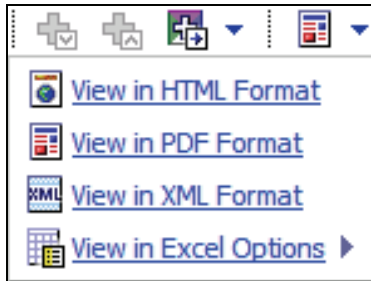
1. Run the report in **HTML**.

A section of the results appear as follows:

Order Details			
Jan 12, 2004			
Order number	Product	Product description	Revenue
100001	Flicker Lantern	Simple to use, just requires a candle to be inserted and lit. Windproof, lasts for hours.	8,624.64
	Polar Ice	Polar Ice sunglasses have polarized lenses to combat glare from snow. Unbreakable nylon frame.	9,411.6
100001 - Total			18,036.24
100002	Bear Edge	Knife is 33 cm long with a 20 cm blade made of surgical stainless steel. The handle is laminated wood. The custom made sheath is black leather.	6,690.8
	Edge Extreme	Multi-purpose pocketknife ruggedly constructed of stainless steel. Includes 4 different blades, corkscrew, saw, scissors, pliers and more.	18,032.22

The report contains a column displaying a description of each product.

2. In **IBM Cognos Viewer**, change to view the report in **PDF**.



A section of the results appear as follows:

<u>Order Details</u>		
Jan 12, 2004		
Order number	Product	Revenue
100001	Flicker Lantern	8,624.64
	Polar Ice	9,411.6
100001 - Total		18,036.24
100002	Bear Edge	6,690.8
	Edge Extreme	18,032.22
	Glacier GPS Extreme	24,747.82
	Insect Bite Relief	2,532
	Mountain Man Deluxe	6,825.6
100002 - Total		58,828.44

When the report is rendered in PDF format, the Product Description does not appear.

3. Close **IBM Cognos Viewer**.

Leave Report Studio open for the next demo.

Results:

You created a report you can run with or without a column displaying product descriptions based on the format in which you run the report.

Conditionally Format One Crosstab Measure Based on Another

	2004		2005	
	Gross margin	Revenue	Gross margin	Revenue
Camping Equipment	39.3036%	332,986,338.06	40.8637%	402,757,573.17
Golf Equipment	49.1638%	153,553,850.98	49.7863%	168,006,427.07
Outdoor Protection	59.0466%	36,165,521.07	61.3357%	25,008,574.08
Personal Accessories	41.6989%	391,647,093.61	42.0819%	456,323,355.9
Mountaineering Equipment			41.3439%	107,099,659.94

**Revenue formatting
based on Gross margin values**

You can conditionally format one crosstab measure based on another crosstab measure using the Conditional Styles dialog box.

Conditionally formatting one crosstab measure based on another is a new feature starting Cognos BI (v8.4).

Demo 4: Conditionally Format one Crosstab Measure Based on Another

Purpose:



Consumers would like to see conditional formatting for revenue values based on Gross margin values in a crosstab. To achieve this, you will take advantage of the IBM Cognos ability to conditionally format one crosstab value based on another.

Server:	localhost
User/Password:	brettonf/Education1!
Studio:	Report Studio
Package:	Go Data Warehouse (query)
Report Type:	Crosstab
Folder:	Sales and Marketing (query)
Namespace:	Sales (query)


Task 1. Open the report.

1. In **Report Studio**, click **File, Open**, and navigate to **Public Folders\B5158\ Module 12_Customize Reports with Conditional Formatting\Demo 4 Start**, and then click **Open**.
2. On the toolbar, click **Run Report**.
3. Examine the results.
4. Close **IBM Cognos Viewer**.

Task 2. Conditionally Format one Crosstab Measure Based on Another.

1. Right-click the **Revenue** fact cells, point to **Style** and then click **Conditional Styles**.
2. Click **New Conditional Style** , and then click **New Conditional Style** from the list.
3. In the **Base it on the following data item** list, select **Gross margin**, and then click **OK**.
4. In the **Name** box, type **Margin Performance**.
5. Click **New Value** , type **.50**, and then click **OK**.
6. Repeat step 5 to add values of **.40** and **.30**.
7. In the **Style** column, in the top drop down list, select **Excellent**, and then for the remaining drop down lists select **Average**, **Below Average**, and **Poor**.

The results appear as follows:

Range		Style
	Highest value -	
		Excellent 
X	0.50 ↑	Average 
X	0.40 ↑	Below average 
X	0.30 ↑	Poor 
	Lowest value -	

8. Click **OK**, click **OK**, and then on the toolbar, click **Run Report**.

The results appear as follows:

Revenue	2004		2005		2006		2007	
	Gross margin	Revenue	Gross margin	Revenue	Gross margin	Revenue	Gross margin	Revenue
Camping Equipment	39.3036%	332,986,338.06	40.8637%	402,757,573.17	41.5931%	500,382,422.83	40.5718%	352,910,329.97
Golf Equipment	49.1638%	153,553,850.98	49.7863%	168,006,427.07	51.1171%	230,110,270.55	49.6261%	174,740,819.29
Outdoor Protection	59.0466%	36,165,521.07	61.3357%	25,008,574.08	57.9454%	10,349,175.84	56.1367%	4,471,025.26
Personal Accessories	41.6989%	391,647,093.61	42.0819%	456,323,355.9	43.4696%	594,009,408.42	43.5568%	443,693,449.85
Mountaineering Equipment			41.3439%	107,099,659.94	42.5399%	161,039,823.26	42.2997%	141,520,649.7

Revenue values are conditionally formatted based on Gross margin values.

9. Close **IBM Cognos Viewer**, right-click the **Gross margin** fact cells, point to **Style**, and then click **Conditional Styles**.

You will now apply the same Margin Performance style to the Gross margin measure.

10. Click **New Conditional Style**, select **Use Existing Conditional Style**, and then select **Margin Performance**.
11. Click **OK**, click **OK**, and then on the toolbar, click **Run Report**.

The results appear as follows:

Revenue	2004		2005		2006		2007	
	Gross margin	Revenue	Gross margin	Revenue	Gross margin	Revenue	Gross margin	Revenue
Camping Equipment	39.3036%	332,986,338.06	40.8637%	402,757,573.17	41.5931%	500,382,422.83	40.5718%	352,910,329.97
Golf Equipment	49.1638%	153,553,850.98	49.7863%	168,006,427.07	51.1171%	230,110,270.55	49.6261%	174,740,819.29
Outdoor Protection	59.0466%	36,165,521.07	61.3357%	25,008,574.08	57.9454%	10,349,175.84	56.1367%	4,471,025.26
Personal Accessories	41.6989%	391,647,093.61	42.0819%	456,323,355.9	43.4696%	594,009,408.42	43.5568%	443,693,449.85
Mountaineering Equipment			41.3439%	107,099,659.94	42.5399%	161,039,823.26	42.2997%	141,520,649.7

Now the same conditional style is applied to both measures.

12. Close **IBM Cognos Viewer**, and leave Report Studio open for the workshop.

Results:

By taking advantage of the IBM Cognos ability to conditionally format one crosstab value based on another, you were able to create a crosstab in which conditional formatting for revenue values were based on the Gross margin values. You then applied the same conditional formatting to the Gross margin values to create a uniform look for the crosstab.

Summary

- At the end of this course, you should be able to:
 - create multi-lingual reports
 - highlight exceptional data
 - show and hide data
 - conditionally render objects in reports
 - conditionally format one crosstab measure based on another

INTERACTION - Check Sticker: Check off each objective as it is summarized.

Workshop 1: Distinguish Yearly Data

You have been asked to create a report that shows the volume of sales in each region by retailer type. To make the yearly data easier to distinguish, you will format the report so each year column will have a different background color.

To accomplish this you will:

- Navigate to Public Folders\B5158\Module 12_Customize Reports with Conditional Formatting.
- Open Workshop 1 Start.
- Create a year string variable with values for each year.
- Assign the measures in the crosstab a conditional style using the year variable.
- Set the display for each year to display a yellow background for 2004, a green background for 2005, a blue background for 2006, and a red background for 2007.

For more detailed information outlined as tasks, see the Task Table section.

For the final results, see the Workshop Results section that follows the Task Table section.

Workshop 1: Task Table

If you need more information to complete a task, see the Step-by-Step

Task 1: Open the report and create an order year variable.	
Where to Work	Hints
Toolbar	<ul style="list-style-type: none"> Navigate to Public Folders\B5158\Module 12_Customize Reports with Conditional Formatting.
File > Open	<ul style="list-style-type: none"> Open Workshop 1 Start.
	<ul style="list-style-type: none"> Variable name: Year.
Condition Explorer	<ul style="list-style-type: none"> Type: String.
	<ul style="list-style-type: none"> Expression: [Query1].[Year]
	<ul style="list-style-type: none"> Values: 2004, 2005, 2006, and 2007.
Task 2: Define the measures as conditional and set the display for each value.	
Where to Work	Hints
Properties pane	<ul style="list-style-type: none"> Quantity cells, Conditional Style = Year.
Condition Explorer	<ul style="list-style-type: none"> Background color, Web Safe Colors.
Toolbar	<ul style="list-style-type: none"> 2004: yellow #FFFF99.
	<ul style="list-style-type: none"> 2005: green #33FF99.
	<ul style="list-style-type: none"> 2006: blue #66FFFF.
	<ul style="list-style-type: none"> 2007: red #FF6666.

Workshop 1: Results

A section of the results appear as follows:

Quantity	Americas				Asia Pacific			
	2004	2005	2006	2007	2004	2005	2006	2007
Department Store	1,727,876	1,487,381	1,379,365	744,786	1,217,094	1,478,541	1,406,756	961,984
Direct Marketing	148,802	141,290	169,247	77,415	210,619	203,603	351,474	144,896
Equipment Rental Store	81,480	101,775	147,396	112,749	42,258	92,571	125,943	164,217
Eyewear Store	206,533	240,970	327,806	289,250	99,940	152,782	231,029	225,936
Golf Shop	271,114	313,422	404,204	285,323	272,825	509,698	614,846	457,216
Outdoors Shop	1,600,571	2,510,484	2,956,928	2,476,759	1,757,524	2,061,142	2,392,989	1,971,191
Sports Store	1,794,109	1,890,046	2,063,169	1,533,915	1,075,804	1,151,277	1,131,145	843,307
Warehouse Store	609,084	406,600	418,051	294,651	396,751	257,819	362,916	223,447

Workshop 1: Step-by-Step Instructions

Server: localhost
User/Password: brettonf/Education1!
Studio: Report Studio
Package: Go Data Warehouse (query)
Report Type: Crosstab
Folder: Sales and Marketing (query)
Namespace: Sales (query)

Task 1. Open the report and create an order year variable.

1. In **Report Studio**, click **File**, **Open**, and navigate to **Public Folders\B5158\Module 12_Customize Reports with Conditional Formatting\Workshop 1 Start**, and then click **Open**.
2. On the **Explorer** bar, point to **Condition Explorer**, click **Variables**, and then double-click **String Variable**.
3. In the **Expression Definition** pane, type the following condition:
[Query1].[Year]
4. Click **Validate**, and then click **OK**.
5. In the **Properties** pane, in the **Name** box, type **Year**, and then press **Enter**.
6. Under the **Values** box, click **Add** to create a value, type **2004**, and then click **OK**.
7. Repeat step 6 to add values named **2005**, **2006**, and **2007**.
8. On the toolbar, click **Back**.

Task 2. Define the measures as conditional and set the display for each value.

1. In the crosstab, click a **Quantity** cell, and then in the **Properties** pane, double-click **Style Variable**.
2. In the **Variable** list, click **Year**, and then click **OK**.
3. On the **Explorer** bar, point to **Condition Explorer**, and then click **2004**.
4. With the **Quantity** cells still selected, on the toolbar, click the down arrow next to **Background Color**.
5. Click the **Web Safe Colors** tab, and on the color chart, on the bottom row, 3rd from the right, click the light yellow color **#FFFF99**.
6. Repeat steps 3 to 5 to change the background colors for **2005**, **2006**, and **2007** according to the following chart.

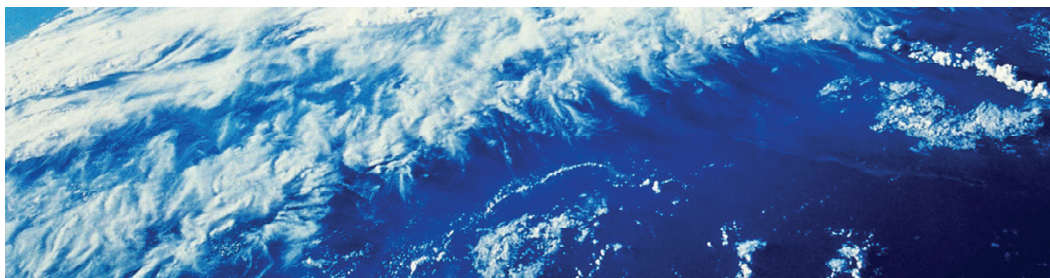
Year	Color	Color Code	Position
2005	Light green	#33FF99	4 th row, 3 rd from right
2006	Light blue	#66FFFF	6 th row, last column
2007	Light red	#FF6666	2 nd last row, 4 th from right

7. Double-click the **Explorer** bar to turn the conditional formatting off.
8. On the toolbar, click **Run Report**.
9. Close **IBM Cognos Viewer**, close **Report Studio** without saving changes, and then close **Internet Explorer**.



Drill-Through from One Report to Another

IBM Cognos BI



Business Analytics

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Objectives

- At the end of this course, you should be able to:
 - let users navigate from a specific report to a target report
 - pass parameter values to filter the data in drill-through targets
 - navigate through multiple reports

If you intend to teach this module, students should be familiar with:

- Report Studio Basics
- List reports
- Crosstab reports
- Filters
- Calculations

Suggested modules to reference:

- Introduction to the Reporting Application
- Create List Reports
- Create Crosstab Reports
- Focus Reports Using Filters
- Extend Reports Using Calculations

INTERACTION - Star Sticker: Star Sticker: Use the star sticker to highlight each objective as it is introduced.

Let Users Navigate to Related Data in IBM Cognos BI

- Drill-through lets users navigate between reports to view related data to help them answer business questions.

Crosstab Source Report

Revenue	2005	2006
E-mail	44,318,886.43	23,701,042.57

Target List Report

Order method	Product line	Year	Revenue
E-mail	Camping Equipment	2006	2,501,787.15
	Golf Equipment	2006	1,182,984.1

Let users navigate to related data in IBM Cognos BI by clicking on data item; columns, rows, and intersections..

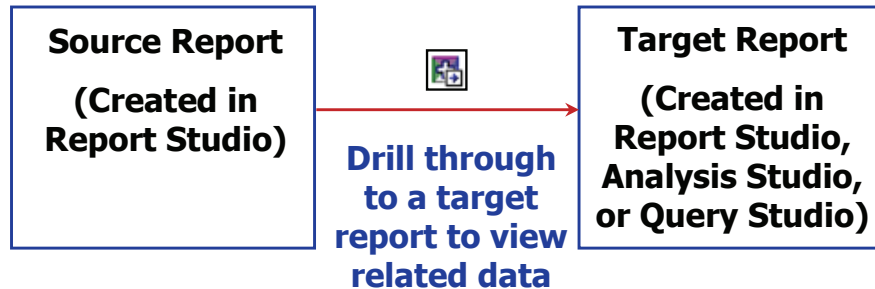
In IBM Cognos BI, report authors can set up drill-through access to and from Report Studio reports, Query Studio queries, Analysis Studio analyses, and other third party sources using dimensional and relational data sources.

It is also possible to set up drill-through access to Cognos targets from third party sources and to third party targets from Cognos sources. For example, drill-through access could be set up from an Excel spreadsheet to a Report Studio report. Setting up drill-through access to and from third-party sources and targets can be accomplished using URL requests or by using the Software Development Kit.

INTERACTION - Toolbar Emoticons > Raise Hand: Using the above slide, query the students as to which data item was used for the drill-through source

Set Up drill-Through Access from a Report

- You must create the target report before you can set up drill-through access.



You can set up drill-through access from reports created using relational data sources or dimensional data sources.

You can let users navigate to target reports, queries, and analyses created from both relational and dimensional data sources.

This flexibility enables you to set up drill-through access to let users view the data necessary to answer their business questions.

Specify the Values Passed to Target Parameters

- When you set up drill-through access, you must map the values source reports will pass to target parameters.

Parameters are specified in the source report.

Name	Type	Required	Multi-select	Method	Value	Property to Pass
Order method type	String	✓		Pass data item value	Order method type	(Default)
Year	Number	✓		Pass data item value	Year	(Default)

**Parameters from
the target report**

**Values passed from
the source report**

**Cognos.
software**

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If you do not specify which values to pass to target parameters, then when users drill-through, they will be prompted to select values for any required target parameters.

Demo 1: Let Users Drill-Through from a Report

Purpose:

You want to create a report that displays revenue by order method and year. You want to enable users to drill-through from this report to more detailed information.

Server:	localhost
User/Password:	brettonf/Education1!
Studio:	Report Studio
Package:	GO Data Warehouse (query)
Report Type:	List
Folder:	Sales and Marketing (query)
Namespace:	Sales (query)

Task 1. Open the detailed target report.

Before you can set up drill-through access from the high-level report, you must create the target report.

1. In **Report Studio**, from the **File** menu, click **Open**, and then navigate to **Public Folders\B5158\Module 13_Drill-Through from One Report to Another**.
2. Click **Demo 1 Target Start**, and then click **Open**.
3. On the toolbar, click **Run Report** to examine the results.

This report displays data for all order method types for all years. You will add parameters so that when this report is used as a target for drill through, it displays only data for the order method type and year that users have chosen for their drill through.

4. Close **IBM Cognos Viewer**.

Demo 1 - In order for the Solution files for this demo to work, you will need to complete Task 3, Steps 3-8 with the target file found in the Solutions folder.


Task 2. Add parameters, and then save the report.

You will first add a parameter for the Order method type query item.

1. On the toolbar, click **Filters**, and then click **Edit Filters**.
2. On the **Detail Filters** tab, click **Add**, click **Advanced**, and then click **OK**.
3. In the **Available Components** pane, click the **Data Items** tab, and then drag **Order method type** to the **Expression Definition** pane.
4. At the end of the expression, type **=?Order method type?**.

The expression appears as shown below:

[Order method type]=?Order method type?

5. Click **Validate** , in the **Order method type** list, click **E-mail**, and then click **OK**.
6. Click **OK** to return to the **Filters** dialog box.

You will now add a parameter for the Year query item.

7. Click **Add**, click **Advanced**, and then click **OK**.
8. Click the **Data Items** tab, and then drag **Year** to the **Expression Definition** pane.
9. At the end of the expression, type **=?Year?**.

The expression appears as shown below:

[Year]=?Year?

10. Click **Validate**, in the **Year** box, type **2006**, and then click **OK**.
11. Click **OK**, and then click **OK** again.




12. From the **File** menu, click **Save As**, and then in the **Save As** dialog box, navigate to **My Folders**.
13. In the **Name** box, type **Demo 1 Target_Set Up Drill Through**, and then click **Save**.

You will now create the source report from which users will drill through.

Task 3. Create the source report and set up drill-through access.

1. From the **File** menu, click **Open**, and then navigate to **Public Folders\B5158\Module 13_Drill-Through from One Report to Another**.
2. Click **Demo 1 Source Start**, and then click **Open**.

You want to let users drill through to the Demo 1 Target_Set Up Drill Through report from the fact cells in this crosstab.

3. In the crosstab report, click the fact cells, click **Select Ancestor** , and then click **Crosstab Fact Cells**.
4. On the toolbar, click **Drill-Through Definitions** .
5. Click **New Drill-Through Definition** .
6. To the right of the **Report** box, click the **ellipsis**, and then navigate to **My Folders**.
7. Click **Demo 1 Target_Set Up Drill Through**, and then click **Open**.

You must now specify what values the source report will pass to the two parameters in the target report when users drill through.

Task 3, Step 3: Explain that the data items added to the edges of the crosstab (Order method type and Year) are the items that you used to create the parameters in the target report. This means that when you drill-through from fact cells in this crosstab, the fact cells will have both Year and Order method as their context and the two target parameters will receive the required values.

8. Under **Parameters**, click **Edit** .

You want to pass values from the Order method type and Year data items to these parameters.

9. Beside the **Order method type** parameter, in the **Method** list, click **Pass data item value**, and then in the **Value** list, click **Order method type**.
10. Beside the **Year** parameter, in the **Method** list, click **Pass data item value**, and then in the **Value** list, click **Year**.

The results appear as follows:

Parameters Help ×						
Name	Type	Required	Multi-select	Method	Value	Property to Pass
Order method type	String	✓		Pass data item value	Order method type	(Default)
Year	Number	✓		Pass data item value	Year	(Default)

11. Click **OK**, and then click **OK** again.

Task 4. Test drill-through access.

1. On the toolbar, click **Run Report**.

The results appear as follows:

Revenue	2004	2005	2006	2007
E-mail	95,402,796.21	44,318,886.43	23,701,042.57	16,420,318.95
Fax	28,639,472.14	19,896,187.76	13,445,559.93	8,092,322.18
Mail	22,766,850.51	16,013,779.49	6,905,730.44	404,978.53
Sales visit	101,072,721.1	79,721,524.37	73,918,652.38	55,481,936.15
Special	13,905,918.75	10,769,180.34	1,006,100.01	1,670,121.15
Telephone	178,793,580.36	107,160,284.09	37,199,842.8	17,832,073.81
Web	473,771,464.65	881,315,747.68	1,339,714,172.77	1,017,434,523.3

The Revenue fact cells of the crosstab contain links, indicating that you can drill through to another report from these cells.

You will drill through to view more details about sales made by E-mail in 2006.

If the target report is empty when students drill through, have them close IBM Cognos Viewer and then open the Drill Through dialog box by selecting the crosstab fact cells, and then clicking Drill Through. Then have them make sure that the Order method type data item value is being passed to the Order method type parameter and the Year data item value is being passed to the Year parameter.

- In the report, click the **Revenue** item at the intersection of **E-mail** and **2006**.
IBM Cognos BI drills through to the Target report.

A section of the results appear as follows:

Order method type	Region	Product line	Year	Quantity	Revenue	Gross profit
E-mail	Americas	Camping Equipment	2006	43,757	2,501,787.15	984,878.56
		Golf Equipment	2006	3,829	1,182,984.1	596,375.12
		Mountaineering Equipment	2006	45,304	1,764,557.75	710,782.3
		Outdoor Protection	2006	12,488	80,380.53	51,151.52
		Personal Accessories	2006	66,756	3,753,588.45	1,544,096.06
	Asia Pacific	Camping Equipment	2006	31,916	1,688,232.31	625,328.88
		Golf Equipment	2006	72	5,263.2	3,139.2
		Mountaineering Equipment	2006	1,357	10,638.88	6,364.33
		Outdoor Protection	2006	15,228	98,346.34	59,389.01
		Personal Accessories	2006	7,565	264,640.57	98,686.31
	Central Europe	Camping Equipment	2006	59,644	3,566,693.13	1,307,330.37
		Golf Equipment	2006	13,235	1,982,481.23	1,004,571.39
		Outdoor Protection	2006	9,560	60,293.31	37,961.82
		Personal Accessories	2006	16,254	779,109.96	299,227.04

This report displays only details for sales made by E-mail in 2006.

- Click **Bottom** and notice that this report contains only data for the Order method type and Year from which you drilled-through.
- Close **IBM Cognos Viewer**.

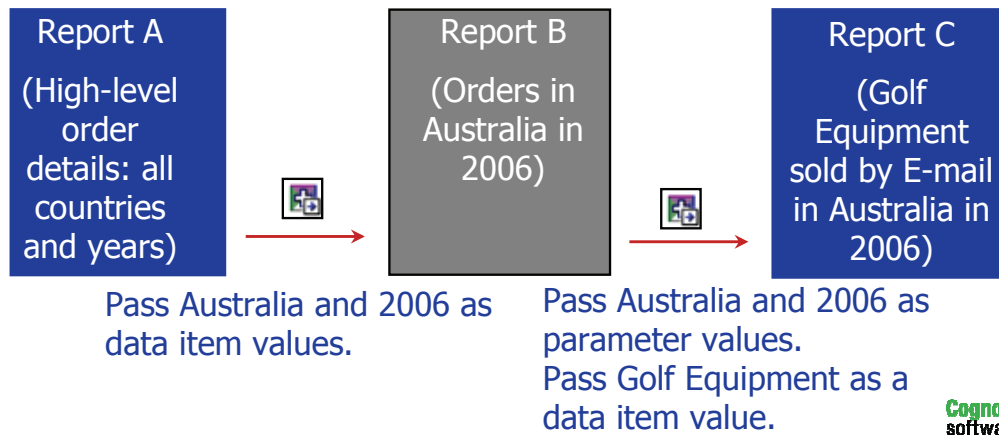
Leave Report Studio open for the next demo.

Results:

You created a report that enables users to drill-through on revenue data from the source crosstab report to view more detailed information in the target list report.

Let Users Navigate Through Multiple Reports

- When you set up drill-through access in Report Studio, you can pass both data item values and parameter values to parameters in the target report.



Passing both data item values and parameter values helps you set up drill-through access from a parent report through a child report to a grandchild report.

When you set up drill-through access, for each parameter in the target report, you can select any of the following options:

- Do not use parameter
- Pass data item value
- Pass parameter value

Demo 2: Let Users Navigate Through Multiple Reports


Purpose:

Your users need to view order method data in varying levels of detail. You will set up drill-through access to let users drill through from a report that displays high-level order details to a more detailed report. You will let users drill through to a third report if they want to view even more details than are contained in the second report.

Server: localhost
 User/Password: bretttonf/Education1!
 Studio: Report Studio
 Package: GO Data Warehouse (query)
 Report Type: List
 Folder: Sales and Marketing (query)
 Namespace: Sales (query)

Task 1. Create the Detailed Order Information target report.

You will begin by creating the most detailed report, the last report, in a series of three to which users would be drilling through.

1. In **Report Studio**, from the **File** menu, click **Open**, and navigate to **Public Folders\B5158\ Module 13_Drill-Through from One Report to Another**.
2. Click **Demo 2 Target 1 Start**, and then click **Open**.
3. Double-click the report title, and then type **Detailed Order Information**.
4. Click the **Block** object(that contains the title), and then click **Left** .

Demo 2 - In order for the Solution files for this demo to work, you will need to complete Task 4, Steps 2-9, Task 7, and steps 3-7 with the target files found in the Solutions folder.

5. On the toolbar, click **Run Report** to examine the results.
6. Close **IBM Cognos Viewer**.

You created this report first because it is the target report. It must be created before you can set up drill-through access from a source report.

Task 2. Add parameters to the Detailed Order Information report.

When users drill through, you want this report to be filtered according to the items that users select for drill through in the source report, including Retailer Country, Year, Order method type, and Product line. You will create parameters for these items.

1. On the toolbar, click **Filters**, and then click **Edit Filters**.
2. Click **Add**, click **Advanced**, and then click **OK**.
3. Click the **Data Items** tab, drag **Retailer country** to the **Expression Definition** pane, and then type **=?Cntry?**.
4. Validate the expression using **Australia**, and then click **OK** twice.
5. Repeat steps 2 and 3 to create the following detail filters:
[Year]=?OY?, (use 2006 to validate)
[Order method type]=?OM?, (use any value to validate)
[Product line]=?PL?, (use any value to validate)
6. Click **OK**, and then save the report as **Report 3_Detailed_Order_Information** in **My Folders**.

Task 3. Create the Order Information report.

You will now create the report users will drill through to from the high-level report. Users will be able to drill through from this report to the Detailed Order Information report you just created.

1. From the **File** menu, click **Open**, and then navigate to **Public Folders\B5158\ Module 13_Drill-Through from One Report to Another**.
2. Click **Demo 2 Target 2 Start**, and then click **Open**.

You want to create parameters for the Retailer Country and Year items, so that this report will display the relevant data when users drill through from the high-level report you will create in a later task. These parameters will receive values from the high-level source report.

3. On the toolbar, click **Filters**, and then click **Edit Filters**.
4. Click **Add**, click **Advanced**, and then click **OK**.
5. In the **Available Components** pane, expand **Sales and Marketing (query) > Sales (query) > Retailers**, and then drag **Retailer country** to the **Expression Definition** pane.
6. At the end of the expression, type **=?Country?**.

The expression appears as follows:

[Sales (query)].[Retailers].[Retailer country] =?Country?

7. Validate the expression using **Australia**, click **OK**, and then click **OK** again.
8. Click **Add**, click **Advanced**, and then click **OK**.
9. Click the **Data Items** tab, and then drag **Year** to the **Expression Definition** pane.
10. At the end of the expression, type **=?Order year?**.

11. Validate the expression using **2006**, and then click **OK**.
12. Click **OK**, and then click **OK** again.
13. In the page header, double-click the report title item, type **Order Information**, and then click **OK**.
14. Click the **Block** object (that contains the title), and then click **Left**.
15. Save the report as **Report 2_Order_Information** in **My Folders**.

Task 4. Set up drill-through access from the Order Information report to the Detailed Order Information report.

You want users to be able to drill through from the Product line column of the Order Information report to the Detailed Order Information report. (Country and year will be passed from the first report to the Order Information, the second report).

1. In the list report, click the **Product line** column body, and then on the toolbar, click **Drill-Through Definitions**.
2. Click **New Drill-Through Definition**, and then to the right of the **Report** box, click the ellipsis.
3. Navigate to **My Folders**, click **Report 3_Detailed_Order_Information**, and then click **Open**.

4. Under **Parameters**, click **Edit**.

The four parameters you created for the Detailed Order Information are displayed, as shown below:

Name	Type	Required	Multi-select	Method
Cntry	String	✓		(Default) ▼
OM	String	✓		(Default) ▼
OY	Number	✓		(Default) ▼
PL	String	✓		(Default) ▼

You can pass data item values to two of these parameters (OM and PL). The other two parameters (Country and OY) will be passed from the High-Level Order Information report.

Year is a data item in this report and it is also a value that will be passed from the High-Level Order Information report, therefore, it could be passed as a value or as a parameter.

You do not have the Country data item in our source report, but you do have a parameter that expects a Country value. Therefore, you will pass a parameter value to the Cntry parameter in the Detailed Order Information report.

When users drill through from the high-level report, the Country and Year parameters in our Order Information report will receive Country and Year values. When users drill through from the Order Information report to the Detailed Order Information report, IBM Cognos BI will pass the values received by the Country and Year parameters to the Cntry and OY parameters.


5. Beside the **Cntry** parameter, in the **Method** list, click **Pass parameter value**, and then in the **Value** list, click **Country**.

Because Order method type appears in the report and the report also contains a parameter for Order method type values, you could pass either a data item value or a parameter value to the OM parameter. You will choose to pass a data item value.

6. Beside the **OM** parameter, in the **Method** list, click **Pass data item value**, and then in the **Value** list, click **Order method type**.
7. Beside the **OY** parameter, in the **Method** list, click **Pass data item value**, and then in the **Value** list, click **Year**.
8. Beside the **PL** parameter, in the **Method** list, click **Pass data item value**, and then in the **Value** list, click **Product line**.
9. Click **OK**, and then click **OK** again.



Because country data does not appear in the report, you will add information to the report title to identify which country the report displays data for.

Task 5. Add a calculation to indicate for which Country the report displays data.

1. Click the **Order Information** report title, and then in the **Properties** pane under **Text Source**, double-click **Text**.
2. After **Order Information**, press the space bar, type **for**, and then press the space bar again.
3. Click **OK**.
4. Click the **Toolbox** tab , and then drag a **Layout Calculation** object to the right of the report title.
5. Click the **Parameters** tab, and then drag the **Country** parameter to the **Expression Definition** pane.

The expression appears as shown below:

ParamDisplayValue('Country')

6. Validate the expression, and then click **OK** to close the dialog box.
7. Click the report title, and then from the toolbar, click **Pick up style** .
8. Click `<%ParamDisplayValue()%>` layout calculation, and then from the toolbar, click **Apply style** .

To test the drill-through access, you will run this report, and then drill through to the Detailed Order Information report.

Task 6. Test the drill through from Order Information to Detailed Order Information.

1. On the toolbar, click **Run Report**.
2. On the **Prompt** page, in the **Retailer country** list, click **Australia**, in the **Year** box, type **2006**, and then click **OK**.

The report runs as shown below:

Order Information for Australia			
Year	Order method type	Product line	Revenue
2006	E-mail	Camping Equipment	418,933.56
		Mountaineering Equipment	10,638.88
	Sales visit	Camping Equipment	1,755,716.43
		Golf Equipment	1,487,319.09
		Mountaineering Equipment	420,293.36

You will drill through to the Detailed Order Information report to view information about Camping Equipment products sold by E-mail.

3. In the **E-mail** row, click **Camping Equipment**.

IBM Cognos BI drills through to the Detailed Order Information report as shown below:

Detailed Order Information						
Retailer country	Year	Order method type	Product line	Product type	Product	Revenue
Australia	2006	E-mail	Camping Equipment	Cooking Gear	TrailChef Single Flame	65,269.47
				Lanterns	Firefly 4	9,774.08
					Firefly Extreme	9,636.92
				Packs	Canyon Mule Extreme Backpack	74,373.3
				Sleeping Bags	Hibernator Extreme	85,639.2
					Hibernator Lite	63,251.01
				Tents	Star Gazer 3	110,989.58

4. Close **IBM Cognos Viewer**, and then save the report to **My Folders**.

Task 7. Create the High Level Order Information report.


1. From the **File** menu, click **Open**, and then navigate to **Public Folders\B5158\Module 13_Drill-Through from One Report to Another**.
2. Click **Demo 2 Source Start**, and then click **Open**.

You want users to be able to drill through to the Order Information report from the fact cells of the crosstab.

3. In the crosstab, click the fact cells, click **Select Ancestor**, and then click **Crosstab Fact Cells**.
4. On the toolbar, click **Drill-Through Definitions**, and then click **New Drill-Through Definition**.
5. Next to the **Report** box, click the ellipsis, and then navigate to **My Folders**.

6. Click **Report 2_Order_Information**, click **Open**, and then under **Parameters**, click **Edit**.

Report Studio displays the Country and Order year parameter definitions you created for the Order Details report. You will pass data item values to these two parameters.

7. Beside the **Country** parameter, in the **Method** list, click **Pass data item value**, and then in the **Value** list, click **Retailer Country**.
8. Beside the **Order year** parameter, in the **Method** list, click **Pass data item value**, and then in the **Value** list, click **Year**.
9. Click **OK**, and then click **OK** again.
10. Double-click the report title, type **High Level Order Information**, and then click **OK**.
11. Click the **Block** object, and then on the toolbar, click **Left**.
12. In the crosstab, click a **Retailer Country** cell on the row edge, on the toolbar, click **Sort** , and then click **Ascending**.
13. Repeat step 12 for **Year** cell on the column edge.
14. Save the report as **High Level Order Information** in the **My Folders**.

Task 8. Drill through the three reports.

1. On the toolbar, click **Run Report**.

A section of the results appear as shown below:

High Level Order Information				
Revenue	2004	2005	2006	2007
Australia		25,607,043.5	47,799,737.14	35,893,188.5
Austria	30,342,789.67	34,568,089.63	44,996,737.04	33,801,788.98
Belgium	16,073,047.72	30,396,297.49	38,375,432.68	28,186,839.74
Brazil	29,211,007.61	34,234,876.3	43,389,953.66	31,440,841.48
Canada	59,271,676.52	75,428,386.09	98,134,069.39	73,325,209.39
China	68,421,694.23	79,080,487.8	99,109,351.67	70,633,377.06
Denmark	14,114,491.58	15,893,266.56	20,050,465.71	11,954,799.66
Finland	36,353,326.76	47,826,647.4	59,648,620.03	44,746,715.94
France	67,045,859.97	72,237,824.99	83,075,921.12	64,209,896.07
Germany	61,539,365.41	65,238,045.33	78,113,786.54	57,421,831.51
Italy	32,017,325.57	46,135,925.15	61,869,049.4	46,625,798.56
Japan	75,781,108.33	86,340,229.66	112,137,014.8	83,188,254.16
Korea	42,151,174.55	50,844,973.03	60,714,213.16	47,014,946.35
Mexico	27,817,408.2	42,363,571.97	58,604,264.71	38,401,768.34
Netherlands	35,385,280.99	44,421,659.64	58,301,767.95	46,212,968.05
Singapore	41,360,570.89	48,204,222.88	60,942,902.92	47,114,688.35

You want to examine more details about orders in France in 2006.

- Click the intersection of **France** and **2006** (\$83,075,921.12).

IBM Cognos BI drills through to the Order Information report as shown below:

Order Information for France			
Year	Order method type	Product line	Revenue
2006	E-mail	Camping Equipment	197,471.46
		Golf Equipment	44,761.26
		Outdoor Protection	10,800.81
	Fax	Camping Equipment	181,001.8
	Sales visit	Camping Equipment	2,642,322.22
		Golf Equipment	427,055.29
		Mountaineering Equipment	760,756.16
		Outdoor Protection	49,291.8
		Personal Accessories	517,854.07
	Telephone	Camping Equipment	1,948,176.43
		Golf Equipment	437,406.3
		Mountaineering Equipment	495,241.78
		Outdoor Protection	79,002.82
		Personal Accessories	632,943.38
	Web	Camping Equipment	21,250,660.15
		Golf Equipment	10,475,111.31

The report displays data for orders in France in 2006. You want to see more information about Golf Equipment sold by Sales visits in France in 2006.

3. In the **Sales visit** row, click **Golf Equipment**.

The result appears as shown below:

Detailed Order Information						
Retailer country	Year	Order method type	Product line	Product type	Product	Revenue
France	2006	Sales visit	Golf Equipment	Golf Accessories	Course Pro Gloves	4,605.3
					Course Pro Golf Bag	24,079.36
					Course Pro Golf and Tee Set	0
					Course Pro Umbrella	8,439.97
				Irons	Hailstorm Steel Irons	53,499.05
					Hailstorm Titanium Irons	65,275.4
					Lady Hailstorm Titanium Irons	41,383.93
				Putters	Blue Steel Putter	11,058.03
				Woods	Hailstorm Steel Woods Set	38,864.64
					Hailstorm Titanium Woods Set	84,527.1
					Lady Hailstorm Steel Woods Set	34,611.2
					Lady Hailstorm Titanium Woods Set	60,711.31

The report shows data for Golf Equipment sold by Sales visits in France in 2006.

4. Close **IBM Cognos Viewer**.

Leave Report Studio and IBM Cognos Connection open for the workshop.

Results:

You let users drill through from a report displaying high-level information to a more detailed report. You let users who required more data than was shown in this second report drill through to a third report. When users drill through from the second report to the most detailed report, both parameter values and data item values are passed to parameters in the target report.

Summary

- At the end of this course, you should be able to:
 - let users navigate from a specific report to a target report
 - pass parameter values to filter the data in drill-through targets
 - navigate through multiple reports

INTERACTION - Check Sticker: Check mark each objective as it is summarized

Workshop 1: Drill-Through from One Report to Another

HR would like a report that outlines the courses each employee has taken. They want to see the number of course days each employee has taken to date and the cost of those courses. They would also like to be able to drill-through to specific information on each employee for each year.

To accomplish this:

- Navigate to Public Folders\B5158\Module 13_Drill-Through from One Report to Another.
- Open Workshop 1 Target Start.
- Add the parameters:
 - [Year]=?Year?
 - [Employee name]=?Employee name?
- Change the title to 'Training Details for ' and add the following Layout Calculations to the header:
 - ParamDisplayValue('Employee name') to the right of the title
 - ParamDisplayValue('Year') to the left of the title
- Cut the Year column.
- Save the report as Workshop 1 Employee Training Details in My Folders.

In order for the Solution files for this demo to work, you will need to complete Task 4, Steps 2-8 with the target file found in the Solutions folder.

- Navigate to Public Folders\B5158\Module 13_Drill-Through from One Report to Another.
- Open Workshop 1 Source Start.
- On the Employee name column, click Drill-Through Definitions.
- Click New Drill Through Definition, and then beside the Report box, click the ellipsis.
- Edit the Year parameter:
 - Method → Pass data item value
 - Value → Year
- Edit the Employee name parameter:
 - Method → Pass data item value
 - Value → Employee name
- Run the report.
- Drill-Through on Adelaide Wiesinger.

For more detailed information outlined as tasks, see the Task Table section.

For the final results, see the Workshop Results section that follows the Task Table section.

Workshop 1: Task Table

If you need more information to complete a task, see the Step-by-Step.

Task 1: Create the Employee Training Details report.

Where to Work	Hints
Toolbar	<ul style="list-style-type: none"> Navigate to Public Folders\B5158\Module 13_Drill-Through from One Report to Another.
File > Open	<ul style="list-style-type: none"> Open Workshop 1 Target Start.

Task 2: Add parameters to the employee training details report.

Where to Work	Hints
Detail Filters	<ul style="list-style-type: none"> Create the expressions:
Data Items pane	<ul style="list-style-type: none"> [Year]=?Year?
	<ul style="list-style-type: none"> [Employee name]=?Employee name?.

Task 3: Add a calculation to indicate for which year and employee name the report displays data.	
Where to Work	Hints
Work area Parameters tab	<ul style="list-style-type: none"> • Create a title 'Training Details for' with a space at the beginning and the end of the title.
Toolbox tab	<ul style="list-style-type: none"> • Add two Layout Calculations, one to the beginning and one to the end of the title. • Create the expressions: ParamDisplayValue ('Year') at the beginning. • ParamDisplayValue ('Employee name') at the end.
Toolbar	<ul style="list-style-type: none"> • Make the text format of the title and parameter expressions the same. • Align left. • Cut Year from the list. • Save the report as Workshop 1 Employee Training Details in the My Folders.

Task 4: Create the Employee Training Summary report and set up drill-through access to Employee Training Details report.	
Where to Work	Hints
Toolbar	<ul style="list-style-type: none"> • Navigate to Public Folders\B5158\Module 13_ Drill-Through from One Report to Another.
File > Open	<ul style="list-style-type: none"> • Open Workshop 1 Source Start.
Work area Toolbar	<ul style="list-style-type: none"> • Click Employee name and then click Drill-Through Definitions.
Parameters / edit	<ul style="list-style-type: none"> • Click New Drill Through Definition and click the ellipsis beside the Report box. • Edit the Year parameter: Method → Pass data item value → Year. • Edit the Employee name parameter: Method → Pass data item value → Employee name.
Task 5: Test the drill through from Employee Training Summary report to Employee Training Details Order Information report.	
Where to Work	Hints
Toolbar	<ul style="list-style-type: none"> • Run the report and then drill through on Adelaide Wiesinger.

If you need more information to complete a task, see the Step-by-Step instructions at the end of the Workshop.

Workshop 1: Results

After completing Task 5, Step 1, the results appear as follows:

<u>Employee Training Summary</u>			
Year	Employee name	Course days YTD	Course cost
2004	Aaghe Heiman	1	250
	Abram Ruiz	4	3,500
	Adara Cruz	4	3,500
	Adelaide Wiesinger	7	2,300
	Adriana Iacobucci	4	10,500
	Adrienne Roche	4	10,500
	Aert Meyer	4	10,500
	Agatha Reyes	9	7,250
	Agnes Ramos	8.5	6,500
	Agnietje Visser	4	10,500
	Agostino Rossi	1	250

After completing Task 5, Step 2, the results appear as follows:

2004 Training Details for Adelaide Wiesinger

Course code	Course name	Course days	Course cost
13501	Safety Procedures	1	250
14501	Time Management	1	250
15001	First Aid and CPR	1	200
15501	GO Orientation	1	250
18501	GO Communication	1	500
19501	GO Communication 2	1	500
20001	GO Ethics	0.5	250
23001	First Aid and CPR Refresher	0.5	100

Workshop 1: Drill-Through from One Report to Another

Server: localhost
User/Password: brettanf/Education1!
Studio: Report Studio
Package: GO Data Warehouse (query)
Report Type: List
Folder: Sales and Marketing (query)
Namespace: Sales (query)

Task 1. Create the Employee Training Details report.

You will begin by creating the most detailed report, the last report, to which users would be drilling-through.

1. In **Report Studio**, from the **File** menu, click **Open**, and then navigate to **Public Folders\B5158\Module 13_Drill-Through from One Report to Another**.
2. Click **Workshop 1 Target Start**, and then click **Open**.

You created this report first because it is the target report. It must be created before you can set up drill-through access from a source report.

Task 2. Add parameters to the Employee Training Details report.

When users drill through, you want this report to be filtered according to the employee and year that users are interested in. You will create parameters for these items.

1. On the toolbar, click **Filters** and then click **Edit Filters**.
2. Click **Add**, click **Advanced**, and then click **OK**.

3. Click the **Data Items** tab, drag **Year** to the **Expression Definition** pane, and then type **=?Year?**.
4. Validate the expression using **2006**, and then click **OK** twice to close each dialog box.
5. Repeat steps **2** to **4** to create a detail filter as follows:
[Employee name]=?Employee name?, (use any employee to validate)
6. Click **OK**.

Task 3. Add a calculation to indicate for which year and employee name the report displays data.

1. Double-click the report title, press the space bar and then type **Training Details for** press the space bar again, and then click **OK**.
2. From the **Toolbox** tab, drag a **Layout Calculation** object to the right of the report title.
3. Click the **Parameters** tab, and then drag the **Employee name** parameter to the **Expression Definition** pane.

The expression appears as shown below:

ParamDisplayValue('Employee name')

4. Validate the expression, and then click **OK**.
5. From the **Toolbox** tab, drag a **Layout Calculation** object to the left of the report title.
6. Repeat steps **3** and **4**, clicking **Year** on the **Parameters** tab.
7. Click the report title **Training Details for**, and then, on the toolbar, click **Pick Up Style**.

8. Ctrl-click both the `<%ParamDisplayValue()%>` layout calculations, and then on the toolbar, click **Apply Style**.
9. Click the **Block** object to the left of the report title, and then on the toolbar click **Left**.
10. In the list, click **Year**, and then click **Cut**.
You will not need the year in the report since the value that is passed from the source report will display in the title.
11. In the list, click **Employee name**, and then click **Cut**.
12. Save the report as **Workshop 1 Employee Training Details** in **My Folders**.

Task 4. Create the Employee Training Summary report and set up drill-through access to the Employee Training Details report.

You will now create the Employee Training Summary report. Users will be able to drill-through from this report to the detailed report you created earlier.

1. From the **File** menu, click **Open**, and then navigate to **Public Folders\B5158\Module 13_Drill-Through from One Report to Another**.
2. Click **Workshop 1 Source Start**, and then click **Open**.

You want users to be able to drill through from the Employee name column of the Employee Training Summary report to the Employee Training Details report.

3. In the list report, click the **Employee name** column body, and then on the toolbar, click **Drill-Through Definitions**.
4. Click **New Drill-Through Definition**, and then beside the **Report** box, click the ellipsis.

5. Navigate to **My Folders**, click **Workshop 1 Employee Training Details**, and then click **Open**.
6. Under **Parameters**, click **Edit**.
7. Beside the **Employee name** parameter, in the **Method** list, click **Pass data item value**, and then in the **Value** list, click **Employee name**.
8. Beside the **Year** parameter, in the **Method** list, click **Pass data item value**, and then in the **Value** list, click **Year**.
9. Click **OK**, and then click **OK** again.
10. Double-click the report title, type **Employee Training Summary**, and then click **OK**.
11. Click the Block object, and then on the toolbar, click **Left**.

Task 5. Test the drill-through from Employee Training Summary report to Employee Training Details Order Information report.

1. On the toolbar, click **Run Report**.
2. In the **Employee name** column, click **Adelaide Wiesinger**.
3. Close **IBM Cognos Viewer**, close **Report Studio**, and then close **Internet Explorer**.



Drill-Through Definitions

IBM Cognos BI



Business Analytics

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Objectives

- At the end of this module, you should be able to:
 - discuss parameter-driven drill through
 - discuss dynamic drill through
 - set up package-based drill-through definitions
 - set scope
 - use the Drill Through Assistant

This module is a shared module used in several courses. The intent of this module is to help students understand the basics of Drill Through. Drill Through is an intrinsic part of modeling, cube creation, and reporting. This module should be delivered as part of introductory coursework. If you intend to teach this module, students should be familiar with Report Studio basics:

- List reports
- Filters
- Calculations

INTERACTION - Star Sticker: Use the star sticker to highlight each objective as it is introduced.

Business Analytics


Let Users Navigate to Related Data in IBM Cognos

Crosstab Source Report


Revenue	2005	2006
E-mail	44,318,886.43	23,701,042.57

Click on the data item to drill through

↓

Target List Report

Order method	Product line	Year	Revenue
E-mail	Camping Equipment	2006	2,501,787.15
	Golf Equipment	2006	1,182,984.1


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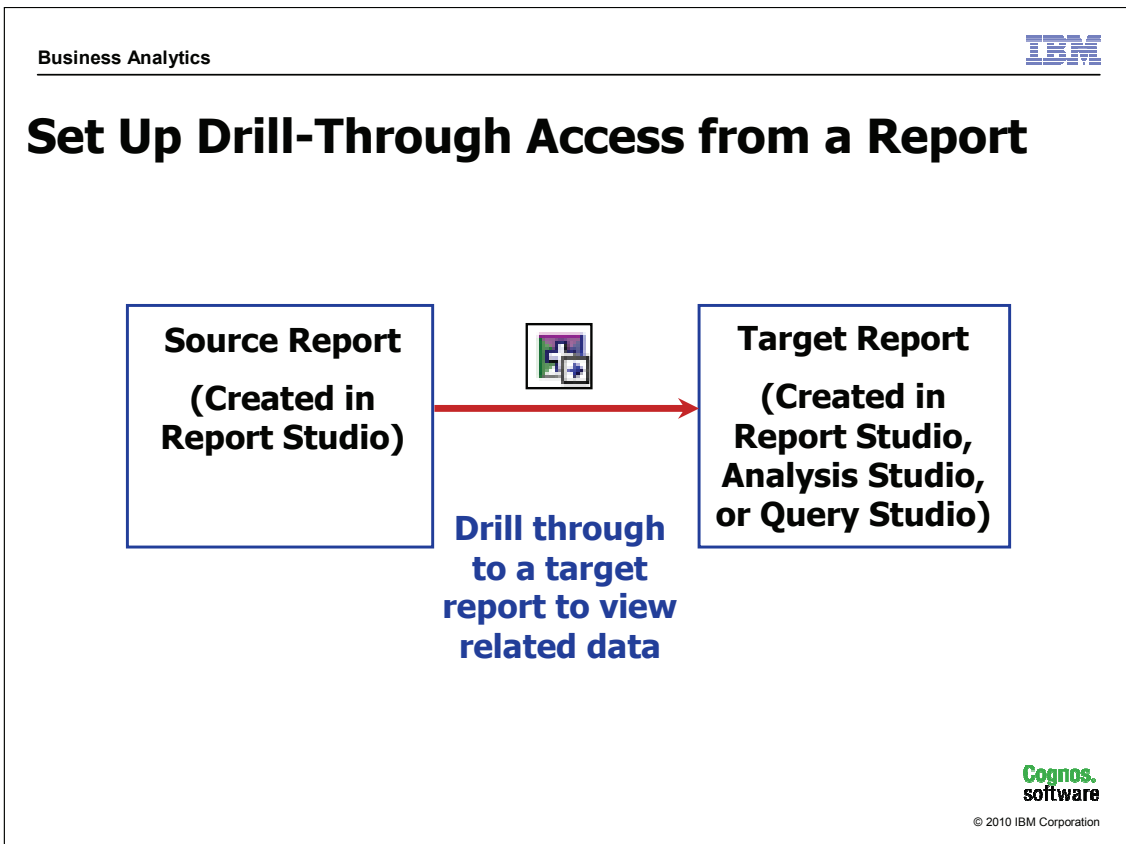
Drill-through access lets users navigate between reports to view related data to help them answer business questions.

In IBM Cognos, report authors can set up drill-through access to and from Report Studio reports, Query Studio queries, and Analysis Studio analyses using dimensional and relational data sources.

It is also possible to set up drill-through access to IBM Cognos targets from third party sources and to third party targets from Cognos sources. Setting up drill-through access to and from third-party sources and targets can be accomplished using URL requests or by using the Software Development Kit.

INTERACTION - Survey: Multiple Choice – Which reports can we set up drill-through access for?

- * Report Studio
- * Query Studio
- * Analysis Studio
- * Third Party Sources like Spreadsheets
- * All of the above



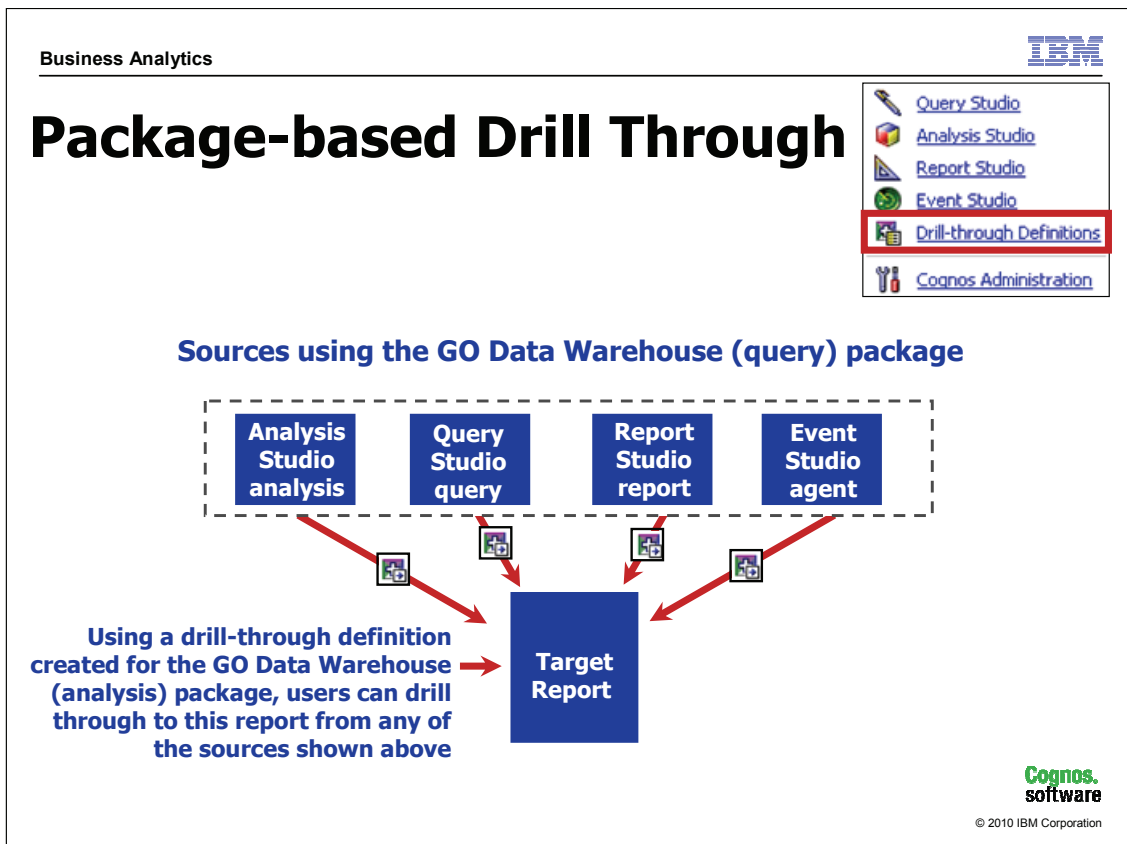
You can set up drill-through access from reports that are created from relational data sources or dimensional data sources.

You can let users navigate to target reports, queries, and analyses created from both relational and dimensional data sources.

You must create the target report before you can set up drill-through access.

INTERACTION - Survey: Which of the following drill-through combinations are acceptable?

- * Relational to Relational
- * DMR to Relational
- * OLAP to Relational
- * DMR to DMR
- * OLAP to DMR
- * OLAP to OLAP
- * All the above



To let users navigate to a specific target report from reports, analyses, and queries created using a package, you can create a drill-through definition for the package.

The source reports do not need to be created when you create the drill-through definition. This lets you set up drill-through access to the target report, and then later, report authors can create as many source reports as required.


Each package drill-through definition can have only one target. You can create multiple drill-through definitions for a package.

In the slide example, a drill-through definition has been created for the GO Data Warehouse package. Users can drill through to the target report from a variety of sources created using the same package.

A model in Framework Manager is a business presentation of the structure of the data from one or more data sources (such as IBM Cognos PowerCubes and relational databases). A model describes the metadata objects, structure, and grouping, as well as relationships and security.

You can set permissions properties for target reports to determine which users will be able to open them when they attempt to drill through. You can also set permissions properties for drill-through definitions to determine which users have access to these drill-through definitions.

In IBM Cognos (v10.1), targets can be reports or packages.

Business Analytics


Specify the Values Passed to Target Parameters

Report-based drill-through definition

Name	Type	Required	Multi-select	Method	Value	Property to Pass
Product type	String	✓		Pass data item value	Product type	(Default)
Year	Number	✓		Pass data item value	Year	(Default)

Parameters in the target report

↑

Values passed from the source report

↑

Properties passed from the source report


↑

Parameter mapping:

Map a source metadata item to each specified target parameter so values can be passed to the target when the drill-through action occurs.

Target parameter	Type	Required	Multi-select	Source metadata item	Source metadata item properties
Product line	Text	✓		[Sales (query)].[Products].[Product line]	(Default)

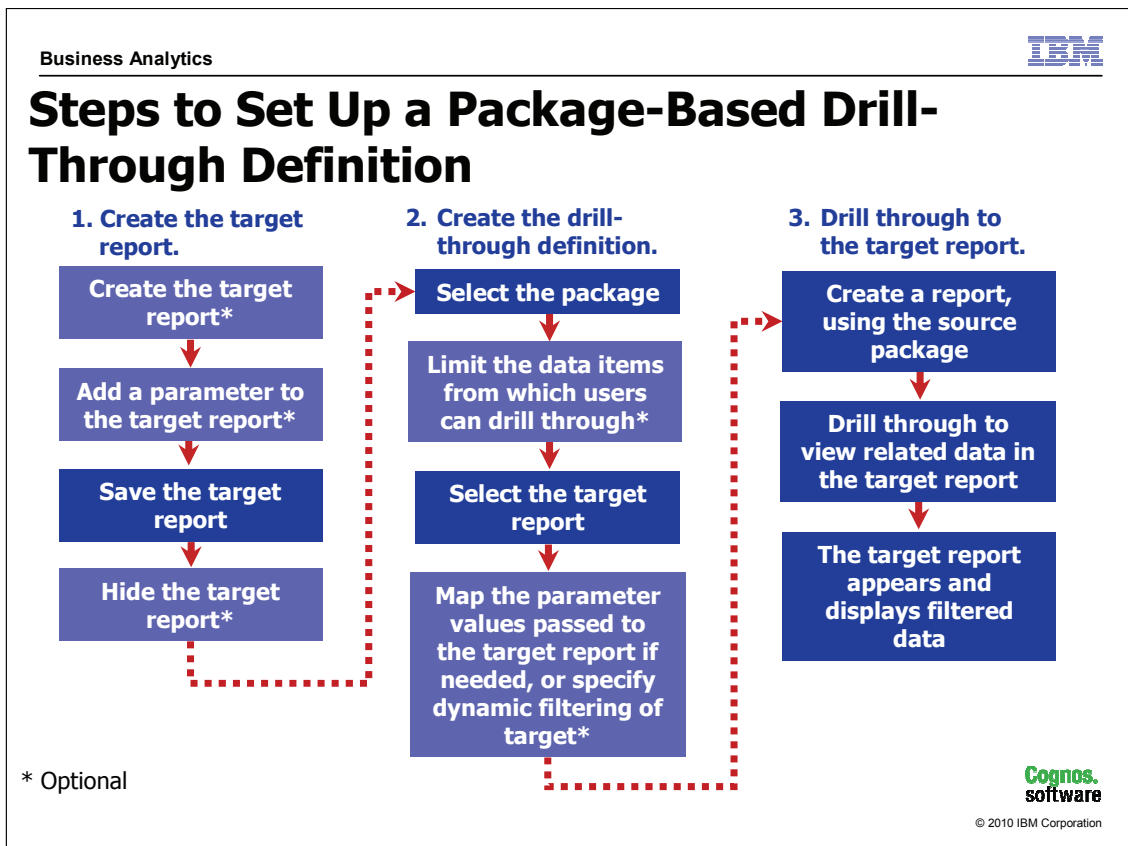
Package-based drill-through definition


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When you set up drill-through access, you must map the values that the source report will pass to the target parameters.

If you do not specify which values to pass to target parameters, then when users drill through they will be prompted to select values for any required target parameters.

When dealing with dimensional sources, you can also select which property of the member you would like to pass to the target report (for example: Member Unique Name, Member Caption, or Business Key). It is important to know which values are conformed between the source report and the target report data sources.



Before you can set up drill-through access for a package, you must have a target report created.

Next, create a drill-through definition that lets users navigate to the target report from reports created using the package.

To let users drill through from a Report Studio report using a package drill-through definition, you must enable this drill behavior in the source report.

Use this slide to give students a high-level understanding of this process. In the demo, you will examine each of these steps in more detail.

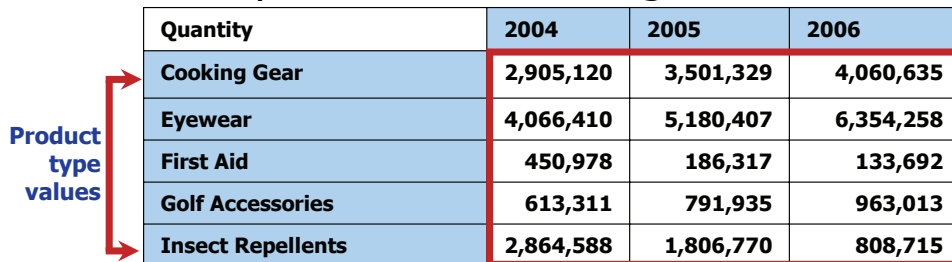
You can create the target report in any studio.

When you set up drill through for a package, the following steps are optional:

- Create the target report (may be done by a different report author)
- Add a parameter to the target report.
- Limit the data items from which users can drill through.
- Map the parameter values passed to the target report.

Limit the Items that Users Can Drill Through From

- For package drill-through definitions, control where users can start drill through in source reports.
- To do this, set a data item in the source package as the scope of the drill-through definition.



Quantity	2004	2005	2006
Cooking Gear	2,905,120	3,501,329	4,060,635
Eyewear	4,066,410	5,180,407	6,354,258
First Aid	450,978	186,317	133,692
Golf Accessories	613,311	791,935	963,013
Insect Repellents	2,864,588	1,806,770	808,715

With scope set to Product type, users can drill through to the target report from any of the fact cells in this report

Cognos.
software

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If a target report contains one parameter, it makes sense to limit the scope of the drill-through definition to the item that must be passed to this parameter. This ensures that users will not be prompted to select a parameter value when they drill through.

Once you have set the scope of a drill-through definition to a particular data item, users can drill through from a cell in source reports only if its context includes this item.

If you do not set the scope of a drill-through definition for a package, users can drill through from any cell in any report created using the package.

It is useful to set the scope of drill-through access to limit the number of possible target reports users see when they drill through. If you have created many drill-through definitions for a package and you do not set the scope, users may be presented with an overwhelming number of possible target reports when they drill through.

When you create a drill-through definition for a relational package, set the scope to a specific fact/measure or query item, such as the Revenue fact from the Sales fact query subject or the Product type query item from the Products query subject.

When you create drill-through definitions for OLAP or dimensionally modeled relational (DMR) packages, you can set the scope to a dimension, a level in the dimension, or a measure.

Measure-Based Scope

- Set scope based on a measure in a drill-through definition.
- The source report must use the selected measure in order to drill through to target report.

When defining a drill-through definition, the user has a choice to set the scope on the target report.

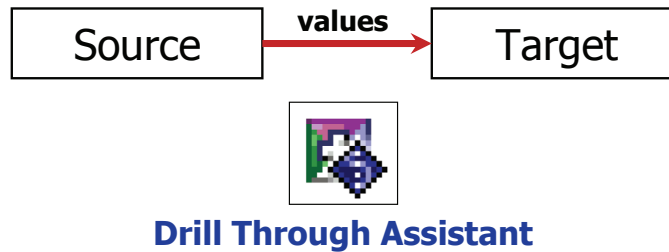
If you base scope on a measure, then the target report that is specified in the drill-through definition will only appear on the Related Links list of a source report if the selected measure is in the source report.

In versions of IBM Cognos prior to 8.4, you could not set scope based on a measure.

INTERACTION - Toolbar Emoticons > Raise Hand: Ask if any of the students are currently using a version of Cognos previous to (v8.4) and reiterate that this is new with (v8.4)

Drill Through Assistant

- The Drill Through Assistant lets you see the values that are passed from the source report to the target report.



IBM Cognos includes a debugging functionality, called the Drill Through Assistant, that you can use to troubleshoot your drill-through definitions created in IBM Cognos Connection. It can also help you understand how the drill-through functionality works, especially across different types of data sources.

The Drill Through Assistant is especially useful for Report Authors and Report Administrators. By default, no user, group, or role can use the Drill Through Assistant until the capability is granted.

For more information about the Drill Through Assistant see the *Administration and Security* guide.

Demo 1: Set Up Drill-Through Access for a Package

Purpose:

You have been asked to create a drill-through definition to let users navigate to a detailed product line sales report that is created from reports using the GO Data Warehouse (query) package. To let users focus on specific areas of interest, the target report will only display data for the product line from which users drill through. Finally, you will enable the Drill Through Assistant and view the values that are passed.

Server:	localhost
Username:	hirschb (Branka Hirsch is a Report Administrator)
Password:	Education1!
Component:	Report Studio
Package:	GO Data Warehouse (query)

Task 1. Create the target report.



In this task you will open and run an existing report.

1. In **IBM Cognos Connection**, navigate to **Public Folders > Samples > Models > GO Data Warehouse (query) > Report Studio Report Samples**, and open the **Total Revenue by Country** report in **Report Studio**.
2. On the toolbar, click **Run Report**.
This is a crosstab report and chart based on a relational model that provides information on region, country, retailer name, and revenue for product lines.
3. Close **IBM Cognos Viewer**.

Because this is a shared module, the required configuration may be different depending on the course in which it appears. To complete this demo, please ensure that the great_outdoors_warehouse data source connection is created.


Task 2. Add a parameter and save the report.

You will add a parameter so that this report will only display data for the Product line from which the users drill through.

1. On the toolbar click **Filters** , click **Edit Filters**, and then click **Add** .
2. In the **Available Components** pane, expand **Sales and Marketing (query) > Sales (query) > Products**, and then drag the **Product line** query item to the **Expression Definition** pane.
3. At the end of the expression type **=?Product line?**
The expression appears as follows:
[Sales (query)].[Products].[Product line]=?Product line?
4. Click **Validate**, in the **Product line** list, click **Golf Equipment**, and then click **OK**.
5. Click **OK**, and then click **OK** again.
6. From the **File** menu, click **Save As**, and then click **My Folders**.
7. In the **Name** box, type **Demo 1_Drill-through Target** click **Save**, and then minimize **Report Studio**.

Task 3. Create a drill-through definition for the GO Data Warehouse (query) package.

You will create a drill-through definition so that users can drill through to this report from reports that were created with the GO Data Warehouse (query) package.

1. In **IBM Cognos Connection**, click **Home**.
2. Click **Launch**, click **Drill-through Definitions**.
3. Click **Samples > Models**, and then click **GO Data Warehouse (query)**.
4. On the toolbar, click **New Drill-through Definition** .
5. In the **Name** box, type **Demo 1 Drill-through Definition** and then click **Next**.

Your target report has a Product line parameter; therefore, you want to limit the scope of this drill-through definition so that users can drill through only from cells in source reports that have Product line as their context.

6. Click **Set the scope**, expand **Sales and Marketing (query) > Sales(query) > Products**, and then click **Product line**.
7. Click **OK**.
8. Click **Set the target**, in the navigation path, click **Cognos**, and then **My Folders**.



Task 3, step 4 - Explain that it is important to create a logical name for each drill-through definition that describes the contents of the drill-through target report. This helps organize drill-through definitions.


9. Select **Demo 1_Drill-through Target**, click **OK**, and then click **Next**.


The Specify the target details page appears and displays the Product line parameter from the Demo 1_Drill-through Target report as follows:

Parameter mapping:
Map a source metadata item to each specified target parameter so values can be passed to the target when the drill-through action occurs.

Entries: 1 - 1

Target parameter	Type	Required	Multi-select	Source metadata item	Source metadata item properties
Product line	Text	✓		map to metadata 	(Default) 

Prompt the user:
Only when required parameter values are missing 

10. For the **Product line** parameter, in the **Source metadata item** column, click **Set the value** .
11. Expand the **Sales and Marketing (query)** folder > **Sales (query)** namespace > **Products** query subject, click the **Product line** query item, and then click **OK**.
12. Leave the default setting for **Prompt the user**, and then click **Finish**.

Task 4. Test the drill-through definition.

You will test this drill-through definition by drilling through from a report created in IBM Cognos Business Insight Advanced using the GO Data Warehouse (query) package.

1. From the **Launch** menu, click **Business Insight Advanced**, navigate to **Public Folders** > **Samples** > **Models**, and then click **GO Data Warehouse (query)**.
2. Click **Create new**, click **List**, and then click **OK**.
3. In the right-pane, expand **Sales and Marketing (query)** > **Sales (query)** > **Retailers**, right-click **Retailer country**, and then click **Insert**.
4. Expand **Sales fact**, right-click **Revenue**, and then click **Insert**.

5. On the toolbar, click **Run Report**.

You will attempt to drill through to view more data about revenue in Australia.

6. In the report, in the **Australia** row, right-click the revenue cell **109,299,969.14**, point to **Go To**, and then click **Related Links**.

The drill-through definition that you created does not appear in the list of available links. This is because you limited the scope of this drill-through definition to the Product line data item. The Australia row does not have a specific product line as its context.

7. Close the **Go to** window and **IBM Cognos Viewer**.
8. Click the **Retailer country** list column body, and then on the toolbar, click **Delete** .

You will add product line data to this report, and then drill through to view more data about revenue generated by the camping equipment product line.

9. In the right pane, expand the **Products** query subject, and then drag **Product line** to the left of the **Revenue** column.
10. On the toolbar, click **Run Report**.
11. In the report, in the **Camping Equipment** row, right-click the revenue cell **1,589,036,664.03**, point to **Go To**, and then click **Related Links**.
12. Under **Available links**, click **Demo 1 Drill-through Definition**.

IBM Cognos drills through to the Demo 1_Drill-through Target report.

13. Click **Bottom**, and observe that the entire report contains data for only the Camping Equipment product line.

A section of the results appear as follows:

Revenue			Camping Equipment	Total(Product line)
Asia Pacific	Singapore	源力实业公司	14,593,047.63	14,593,047.63
		牛车水商厦	4,313,291.26	4,313,291.26
		环球运动装备公司	2,330,183.89	2,330,183.89
		红外实业公司	3,214,725.45	3,214,725.45
		美罗	3,547,851.38	3,547,851.38
		蒙天环健康和运动装备公司	1,752,468.62	1,752,468.62
		詹姆士实业公司	3,238,675.02	3,238,675.02
		陈泽梅实业有限公司	225,447.13	225,447.13
	Korea	振宇企业	19,961,309.75	19,961,309.75
		공스 스포츠	3,557,125.81	3,557,125.81
		대응 렌탈	1,091,655.03	1,091,655.03
		동한 회사	4,787,954.48	4,787,954.48
		삼도 클럽	12,586,074.07	12,586,074.07
		마산 백화점	4,050,652.35	4,050,652.35
		태호 스포츠	13,888,943.21	13,888,943.21
		통일 스포츠	473,384.6	473,384.6
		하나로 백화점	13,059,312.42	13,059,312.42
		한국 스포츠	2,697,327.97	2,697,327.97
		한신 백화점	4,019,864.67	4,019,864.67
		Total(Retailer country)	421,639,391.62	421,639,391.62

The drill-through definition works as expected.

14. Close the instance of **IBM Cognos Viewer** that contains the target report.
15. In the report, in the **Camping Equipment** row, right-click the revenue cell **1,589,036,664.03**, point to **Go To**, and then click **Related Links**.

16. Click **View passed source values**.

The results appear as follows:

Go to Help

Available links:

Name	Target
Demo 1 Drill-through Definition	Directory > LDAP > People > Branka Hirsch > My Folders > Demo 1_ Drill-through Target

[View passed source values](#)

Passed source values:

Custom URL:

Package-based Drill-through access:

Package search path: /content/folder[@name='Samples']/folder[@name='Models']/package[@name='GO Data Warehouse (query)']

Selection context

Item	Display value	Use value
Revenue	1589036664.03	1589036664.03
Product line	Camping Equipment	Camping Equipment

[More](#)

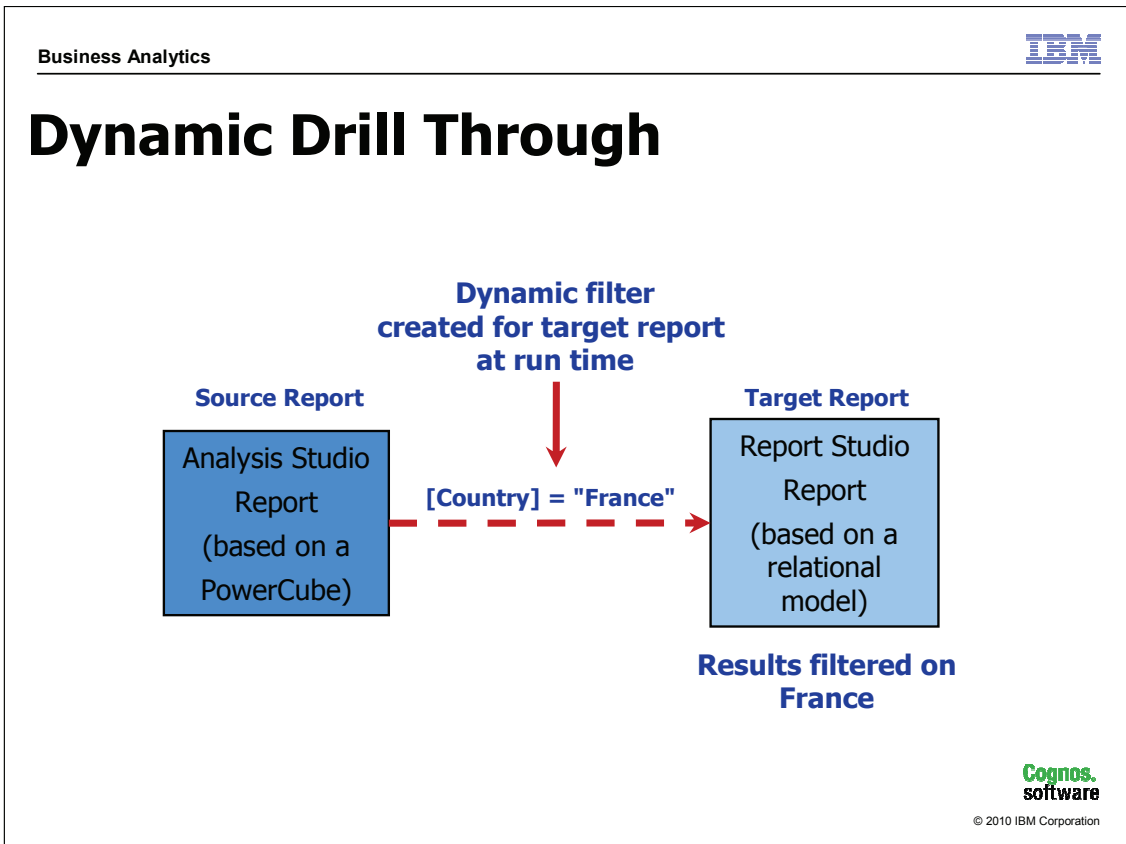
You can see the items and values that are passed. If you want, you can click Demo 1 Drill-through Definition, to view the target report.

For further troubleshooting, you can click the More link. The information found there is typically sent to customer support for investigation.

17. Click **Cancel**, and then close **IBM Cognos Viewer**.
18. On the IBM Cognos Business Insight Advanced toolbar, click **Save**, and then navigate to **My Folders**.
19. In the **Name** box, type **Demo 1_Drill-through Source**, and then click **Save**.
20. Close IBM Cognos Business Insight Advanced without saving, close Report Studio, and then click **Log Off**.

Results:

You created a drill-through definition for the GO Data Warehouse package to let users drill through to a target report containing detailed information about sales of each product line. To let users focus on specific areas of interest, you set up drill-through access so that when users drill through, they will see details for only the product line they are interested in. Finally, you enabled the Drill Through Assistant and viewed the values that were passed.



Dynamic filtering eliminates the need for pre-authored drill-through prompts and parameters previously required for drill-through reports.

Dynamic drill through simplifies the process of authoring reports for drill through and allows administrators to create reliable drill-through definitions between any reports provided they have common items with conformed values.

You can use dynamic drill through alone, or combine with parameterized drill through when reports expect parameters. Non-parameterized items would be filtered dynamically, whereas the parameterized items would be predefined.

In the slide example, the source Analysis Studio report, based on a PowerCube, is configured to drill through to a Report Studio report, based on a relational model. Both the source and the target contain an item called Country. The value from the PowerCube is converted into a string value (based on caption) which matches the string value found in the relational target, in this case, France.

Drill-through functionality also applies to PowerPlay Studio.

Note: In this release, if the drill-through target is a PowerCube, it will always open in PowerPlay Studio (not Analysis Studio). If PPS is not installed, you cannot select a PowerCube as a target for dynamic drill-through. In short PowerCubes, not just reports, can be targets when PPS is installed.

Dynamic Drill Through – Matching Criteria

- Dynamic drill through matches source model item names to either:
 - target model item name
 - target report data item name
- No match - source item is ignored

First, IBM Cognos tries to match model item names. This is the most reliable match since column names may be renamed during the authoring process of potential target reports.

For example, if both the source and target reports had items called Product line, renaming Product line in the target report to something else would still work since the model names match.

When the model names do not match, then the target report data item name must match that of the source report.

If no match is found for the model or data item name, then the item is ignored for the drill-through.

Demo 2: Configure Dynamic Drill Through and Set Measure Scope

Purpose:

You have been asked to configure a package to enable dynamic drill-through from source reports based on the package to a target report that provides revenue details.

In addition, you will also set the scope of the target report to be available only if the source report contains the Revenue measure.

Server:	localhost
Username:	hirschb
Password:	Education1!
Component:	Report Studio
Package:	IBM Cognos Connection, Go Data Warehouse (query)

Task 1. Examine the target report

You will open an existing report in Report Studio, open the Filters dialog, and then save the report with a different name.

1. In **IBM Cognos Connection**, navigate to **Public Folders > Samples > Models > GO Data Warehouse (query) > Report Studio Report Samples**, and then open the **Total Revenue by Country** report in **Report Studio**.

This is a crosstab report based on a relational model that provides information on region, country, retailer name, product line, and revenue.

2. On the toolbar, click **Filters**, and then click **Edit Filters**.

Notice that there are no filters on this report.

3. Click **Cancel**, and then on the toolbar, click **Run Report**.
4. Click **Page Down** to advance through the report.

A section of the report appears as follows:

Revenue			Camping Equipment	Golf Equipment	Mountaineering Equipment	Outdoor Protection	Personal Accessories	Total (Product line)
Americas	Brazil	Ao ar livre	2,554,044.39		2,171,110.26	56,302.39	3,501,023.06	8,282,480.1
		Ar fresco	2,551,975.28		3,882,366.19	180,270.92	5,380,316.96	11,994,929.35
		Armazém do esporte	1,145,731.4	1,485,312.43		108,891.35	5,516,929.77	8,256,864.95
		Casa do Alpinista	1,961,779.8	1,617,961.38		6,813.54	3,217,113.36	6,803,668.08
		Esportes Grumari	12,908,332.31	11,256,888.81		665,820.03	8,605,908.75	33,436,949.9
		Esportópolis	7,365,113.06	719,281.09		371,442.79	926,548.77	9,382,385.71
		Galáxia do esporte	2,476,455.78	495,727.77		59,362.27	4,320,899.09	7,352,444.91
		Lojas do Esportista	2,788,570.61	1,079,903.72		30,643.97	5,142,961.9	9,042,080.2
		Mega Shop do Esporte	273,381.27			8,127	48,928.16	330,436.43

Notice that all data is returned for each of the data items on the report (region country, retailer name, and product line).

5. Close **IBM Cognos Viewer**, and then save the report in **My Folders** as **Demo 2_Drill-through Target**.

Leave the target report open.

Task 2. Create a drill-through definition.


You will create a drill-through definition with dynamic filtering, and use it to drill through to the target report, and then you will identify a filter error.

1. In **IBM Cognos Connection**, from the **Launch** menu, click **Drill-through Definitions**.
2. Navigate to **Public Folders > Samples > Cubes**, and then click the **Sales and Marketing (cube)** package.
3. In the top right corner, click **New Drill-through Definition**, in the **Name** box, type **Revenue Details Drill-through Definition** and then click **Next**.

For now, you will not set any scope on this drill-through definition. Users will be allowed to drill through on any level in any dimension. Later you will restrict the scope based on a measure.

4. Click **Set the target**, navigate to **My Folders**.
5. Select the **Demo 2_Drill-through Target** report, and then click **OK**.
6. Click **Next**, and then in the **Action** list, click **Run the report using dynamic filtering**.

Notice that there are no parameters under Parameter mapping because the target report has no parameters. If the target report did have parameters, you would need to map those parameters, but could still leverage dynamic filtering on other common, non-parameterized items. In other words, you can combine the two methods if required.

7. Click **Finish**, click **Home** , navigate to **Public Folders > Samples > Cubes > Sales and Marketing (cube) > Report Studio Report Samples**, and then open the **Top Retailers by Country** report in **Report Studio**.
8. Click **OK**, click **Select all**, click **OK** and then **OK** again.
9. On the toolbar, click **Run Report**, when prompted to make a selection of retailers click **Select all**, and then click **Finish**.
10. In **IBM Cognos Viewer**, right-click the intersection of **Netherlands/Extra Sport** (rows) and **Prior YTD/Camping Equipment** (columns), point to **Go To**, and then click **Related Links**.

11. Click **View passed source values**.

A section of the results appear as follows:

Selection context		
Item	Display value	Use value
Revenue	4071999.3	[sales_and_marketing].[Measures].[Revenue]
top 10	Extra Sport	[sales_and_marketing].[Retailers].[Retailers].[Retailer name]->:[PC].[@MEMBER].[6846]
Retailer country	Netherlands	[sales_and_marketing].[Retailers].[Retailers].[Retailer country]->:[PC].[@MEMBER].[90010]
Product Set	Camping Equipment	[sales_and_marketing].[Products].[Products].[Product line]->:[PC].[@MEMBER].[991]
Time Set	Prior YTD	[sales_and_marketing].[Time].[Prior YTD]->:[PC].[@MEMBER].[Prior YTD]

[More](#) 

You can see the data items used, their display values, and the values that are used to filter the target report. The Use value may be converted at run time depending on the source and target report data sources. For example, if the source report is based on a PowerCube and the target report is based on a relational model, then the member unique name (MUN) value from the source report may be converted to a string representation of the member caption in order to conform to the relational data value.

12. Under **Available links**, click the **Revenue Details Drill-through Definition** link.

A section of the report appears as follows:

Revenue			Camping Equipment	Total(Product line)
Northern Europe	Netherlands	Beter Buitenleven	12,289,976.23	12,289,976.23
		Klimmeester	1,277,143.13	1,277,143.13
		Kampeertop Shop	2,895,885.1	2,895,885.1
		Extra Sport	15,734,395.66	15,734,395.66
		Sportworld	13,078,104.34	13,078,104.34
		Cornelius' buitensport	1,251,721.79	1,251,721.79
		Get Out	903,791.23	903,791.23
		Optiek Benelux	3,996.72	3,996.72
		Sport Gezond	383,440.78	383,440.78
		Klimgek Bv.	1,958,878.07	1,958,878.07
		Eurobal	1,185,078.65	1,185,078.65
		SportTotaal	6,014,690.68	6,014,690.68
		Topforma	3,717,113.52	3,717,113.52
		Van Out Bv.	13,219.92	13,219.92
		Fred's Sportpaleis	4,949,382.36	4,949,382.36
		Total(Retailer country)	65,656,818.18	65,656,818.18

The source and target reports have country, retailer name and product line in common, yet the report is only filtered on country and product line. Why is this not filtering on retailer name?

Remember, the item names must match. The use value for the item from the source report is Retailer name, as seen with the View passed source values feature.

13. Close all **IBM Cognos Viewer** windows, click **Cancel** in the **GO to** window, and leave both instances of **Report Studio** open.

Task 3. Fix target report and retest.

You will need to verify the item name in the target report, and retest the drill-through.

1. In **Report Studio**, in the **Demo 2_Drill-through Target** report, in the crosstab, click **<#Retailer name (multiscrypt)#>** to select it.

Notice that the name does not match the item name in the cube. In the relational source it is called **Retailer name (multiscrypt)**; in the cube source it is called **Retailer name**.

2. In the **Properties** pane, in the **Data Item** section, change the **Name** property to **Retailer name**, and then save the report.
3. In **Report Studio**, in the **Top Retailers by Country** source report, on the toolbar, click **Run Report**, when prompted to make a selection of retailers click **Select all**, and then click **Finish**.
4. In **IBM Cognos Viewer**, right-click the intersection of **Netherlands/Extra Sport** (rows) and **Prior YTD/Camping Equipment** (columns), point to **Go To**, and then click **Related Links**.
5. Under **Available links**, click the **Revenue Details Drill-through Definition** link.

A section of the report appears as follows:

Revenue			Camping Equipment	Total(Product line)
Northern Europe	Netherlands	Extra Sport	15,734,395.66	15,734,395.66
	Total(Retailer country)		15,734,395.66	15,734,395.66

The report is now filtered on country, retailer name and product line.

6. Close the instance of **IBM Cognos Viewer** that contains the **Demo 2_Drill-through Target** report.

Task 4. Set measure scope.

You will now only permit drill through for this definition when the source report includes the Planned revenue measure.

1. In **IBM Cognos Connection**, from the **Launch** menu, click **Drill-through Definitions**.
2. In the navigation path, click **Public Folders**, and then navigate to **Samples > Cubes > Sales and Marketing (cube)**.
3. In the **Actions** column, beside **Revenue Details Drill-through Definitions**, click **Set properties**.
4. Click the **Target** tab, and then click **Set the scope**.
5. Expand **Measures**, and then click **Planned revenue**.
6. Click **OK**, and then click **OK** again.
7. In **IBM Cognos Viewer**, right-click the intersection of **Netherlands/Extra Sport** (rows) and **Prior YTD/Camping Equipment** (columns), point to **Go To**, and then click **Related Links**.

Notice the Revenue Details Drill-through Definition link is no longer available. This is because the planned revenue measure is not in the source report and therefore the target report is out of scope.

8. Click **Cancel**, and then in **Drill-through Definitions**, in the **Actions** column, beside **Revenue Details Drill-through Definitions**, click **Set properties**.
9. Click the **Target** tab, and then click **Set the scope**.
10. Expand **Measures**, and then click **Revenue**.
11. Click **OK**, and then click **OK** again.

12. In **IBM Cognos Viewer**, right-click the intersection of **Netherlands/Extra Sport** (rows) and **Prior YTD/Camping Equipment** (columns), point to **Go To**, and then click **Related Links**.

The Revenue Details link now appears, since revenue is in the analysis.

13. Click **Cancel**, and then close all open applications.

Results:

By configuring a dynamic drill-through definition and ensuring that the common item names in the source and target reports matched, you were able to achieve a dynamic drill-through.

You also ensured that the target report would only be available if the source report contained the Revenue measure.

Summary

- At the end of this course, you should be able to:
 - discuss parameter-driven drill through
 - discuss dynamic drill through
 - set up package-based drill-through definitions
 - set scope
 - use the Drill Through Assistant

INTERACTION - Check Sticker: Check off each objective as it is summarized.

Workshop 1: Configure Dynamic Drill Through

Consumers using the Sales and Marketing (cube) package for analysis would like to review actual and planned revenue for order methods, using the Actual vs. Planned Revenue report, and be able to get details on lost revenue for specific products displayed in the report. The GO Data Warehouse (analysis) package has lost revenue information and can be used to provide the details consumers require.

A list report has been created based on the GO Data Warehouse (analysis) package that retrieves the following items: Product type, Product, Quantity, Return quantity, % Returned, and Lost revenue. The report is called Returns by Product Type and is located in the Public Folders\Samples\Models\GO Data Warehouse (analysis)\Query Studio Report Samples folder. This will provide a starting point for your target report.

You will create a drill-through definition called Workshop 1 Drill-through Definition that allows consumers to drill through from the Sales and Marketing (cube) package to the target report. Consumers should be able to drill through any report in the package only if the Product type level is available. To accomplish this, you will need to:

- set the scope in the drill-through definition at the Product type level
- ensure that all item names match between the source report and the target report
- create parameterized drill through that will dynamically filter the target report

You will save the target report as Workshop 1_Drill-through Target report, to keep the original sample report unchanged.

You will save the source report as Workshop 1_Drill-through Source_Actual vs. Planned Revenue, to keep the original sample report unchanged.

For more detailed information outlined as tasks, see the Task Table section.

For the final results, see the Workshop Results section that follows the Task Table section.

Workshop 1: Task Table

Task 1: Examine the target report.

Where to Work	Hints
IBM Cognos Business Insight Advanced	<ul style="list-style-type: none"> • Save Public Folders\Samples\Models\GO Data Warehouse (analysis)\IBM Cognos Business Insight Advanced\Query Studio Report Samples>Returns by Product Type report as Workshop 1_Drill-through Target in My Folders. • Add two filters to the report: <ul style="list-style-type: none"> • Product type • Product • Save your changes to the report.

Task 2: Create the drill-through definition.

Where to Work	Hints
Drill-through Definitions	<ul style="list-style-type: none"> • Create a drill-through definition named Workshop 1 Drill-through Definition for the Sales and Marketing (cube) package.
Sales and Marketing (cube) package	<ul style="list-style-type: none"> • Set the scope at the Product type level in the Products dimension. • Set the target report as Workshop 1_Drill-through Target located in My Folders. • Set the Action to run the report with dynamic filtering. • Map the metadata items for the Product_type and Product parameters.

Task 3: View the passed source values.	
Where to Work	Hints
Report Studio	<ul style="list-style-type: none"> Run the Public Folders\Samples\Cubes\Sales and Marketing (cube)\Report Studio Report Samples\Actual vs. Planned Revenue report, and select Web and 2006 when prompted.
IBM Cognos Viewer	<ul style="list-style-type: none"> From the intersection of Web\Binoculars and Base Product, click Seeker 50, start to drill through, to view the passed source values. Close IBM Cognos Viewer.
Task 4: Fix and test source report.	
Where to Work	Hints
Report Studio	<ul style="list-style-type: none"> Save the Actual vs. Planned Revenue report as Workshop 1_Drill-through Source_Actual vs. Planned Revenue. In the report layout, change the Base Product column header name to Product, and save the report. Run Report, and select Web and 2006 when prompted.
IBM Cognos Viewer	<ul style="list-style-type: none"> Start to drill through on Seeker 50 to see the passed source values. Drill through to the target report, using the Workshop 1 Drill-through Definition link.

If you need more information to complete a task, see the Step-by-Step instructions at the end of the Workshop.

Workshop 1: Results

After completing Task 4, the resulting target report appears as follows:

Returns by Product Type					
Product type	Product	Quantity	Return quantity	% Returned ▾	Lost revenue
Binoculars	<u>Seeker 50</u>	159,701	2,282	1.43%	\$211,267.56
Overall Total		159,701	2,282		211,267.56
Overall Calculated				0.0142892	

Workshop 1: Step-by-Step Instructions

Task 1. Examine the target report.

1. Log on to IBM Cognos BI as **hirschb/Education1!**.
2. Click **Author business reports**, and then navigate to **Public Folders > Samples > Models**.
3. Click **GO Data Warehouse (analysis)**, and then click **Open existing**.
4. Double-click **Query Studio Report Samples**, click **Returns by Product Type**, and then click **Open**.

This report provides information about product returns and lost revenue.

5. On the **IBM Cognos Business Insight** toolbar, click **Save**, click **My Folders**.
6. In the **Name** box type **Workshop 1_Drill-through Target**, and then click **Save**.

A section of the results appear as follows:

Product type	Product	Quantity	Return quantity	% Returned ▾▾	Lost revenue
Insect Repellents	BugShield Lotion	773,324	81,189	10.50%	\$189,170.37
Navigation	Trail Star	65,146	5,461	8.38%	\$483,691.20
Insect Repellents	BugShield Lotion Lite	384,513	14,171	3.69%	\$26,641.48
Sunscreen	Sun Shield	991,486	32,382	3.27%	\$89,374.32
Lanterns	EverGlow Lamp	965,019	29,434	3.05%	\$434,454.32
Insect Repellents	BugShield Extreme	2,666,714	72,255	2.71%	\$174,857.10

Notice the first two columns are Product type and Product.

7. On the toolbar, click **Filters**, click **Edit Filters**, and then click **Add**.
8. In the **Custom based on data item** list, ensure that **Product type** is selected, and then click **OK**.
9. Select the **Prompt for values when report is run in viewer** check box.

10. Under the **Values** pane, click **Select all**, click the green arrow to add values to the **Selected values** pane, and then click **OK**.
11. Click **Add**, click **Combined** and then click **OK**.
12. In the **Create Filter** list, ensure that **Product** is selected, and then click **OK**.
13. Select the **Prompt for values when report is run in viewer** check box.
14. In the **Values** pane, click **Select all**, click the green arrow to add values to the **Selected values** pane.
15. Click **OK** 3 times to close all windows.
16. On the toolbar, click **Save**, and close **IBM Cognos Business Insight Advanced**.

Task 2. Create the drill-through definition.

1. Click **IBM Cognos content**, and then from the **Launch** menu, click **Drill-through Definitions**.
2. Navigate to **Public Folders > Samples > Cubes > Sales and Marketing (cube)**, and then click **New Drill-through Definition**.
You want to create a package-based drill-through definition, so you will save it at this location in the package.
3. In the **Name** box, type **Workshop 1 Drill-through Definition** and then click **Next**.
4. Click **Set the scope**, expand **Products**, click **Product type**, and then click **OK**.
You have ensured that if product type does not exist in the source report, then the drill-through definition will not be available to users.
5. Click **Set the target**, and then in the navigation path, click **My Folders**.
6. Click **Workshop 1_Drill-through Target**, and then click **OK**.

7. Click **Next**, and then under **Action**, select **Run the report using dynamic filtering**.
8. For the target parameter **Product type**, click **map to metadata**, expand the **Products**, and then click **Product type**.
9. Click **OK**.
10. For the target parameter **Product**, click **map to metadata**, expand **Products**, and then click the **Product**.
11. Click **OK**, and then click **Finish**.

You can see the new drill-through definition displayed.

12. On the toolbar, click **Home** to return to **IBM Cognos Connection**.

Task 3. View the passed source values.

1. In **IBM Cognos Connection**, navigate to **Public Folders > Samples > Cubes > Sales and Marketing (cube) > Report Studio Report Samples**, and then click the **Actual vs. Planned Revenue** report.

This report prompts for an order method and a year.

2. When prompted, in the **pMethod** list, click **Web**, in the **Year** list click **2006**, and then click **OK**.

A section of the results appear as follows:

2006					
Order method type	Product type	Base Product	Revenue	Planned revenue	Difference
Web	Binoculars	Seeker 35	2,364,509.14	2,488,845.02	124,335.88
		Seeker 50	1,484,847.00	1,563,052.05	78,205.05
		Seeker Extreme	1,516,179.00	1,759,842.78	243,663.78
		Seeker Mini	1,024,541.66	1,129,220.88	104,679.22
		Opera Vision	963,270.00	1,054,240.00	90,970.00
		Ranger Vision	3,107,622.50	3,107,622.50	0.00
	Binoculars		10,460,969.30	11,102,823.23	
	Climbing Accessories	Granite Carabiner	924,169.72	968,000.00	43,830.28

3. In the **Base Product** column, right-click **Seeker 50**, point to **Go To**, and then click **Related Links**.

Notice the Workshop 1 Drill-through Definition link is available. This is because your report has a Product type level, the same level to which the scope has been set.

4. Click **View passed source values**.

The results appear as follows:

Selection context		
Item	Display value	Use value
Base Product	Seeker 50	[sales_and_marketing].[Products].[Pro
Order method type	Web	[sales_and_marketing].[Order method]
Product type	Binoculars	[sales_and_marketing].[Products].[Pro
Revenue	1484847	[sales_and_marketing].[Measures].[Re
Planned revenue	1563052.05	[sales_and_marketing].[Measures].[Pla
Difference	78205.05	78205.05
Year	2006	[sales_and_marketing].[Time].[Time].[Y

Notice the item name for the product level. The target report and the source report need to be conformed, in that the naming convention for all data items needs to be consistent.

5. Click **Cancel**, and then click **Return**.

Task 4. Fix and test source report.

1. In **IBM Cognos Connection**, beside the **Actual vs Planned Revenue** report, under **Actions**, click **Open with Report Studio**.
2. From the **File** menu, click **Save As**, navigate to **My Folders**, and then save the report as **Workshop 1_Drill-through Source_Actual vs. Planned Revenue**.
3. In the report layout, click the **Base product** column header, and then in the **Properties** pane, under **Data Item**, change the **Name** property from **Base Product** to **Product**

4. Save the report, and then on the **toolbar** click **Run Report**.
5. At the prompts, select **Web** and **2006**, and then click **OK**.
6. In the **Product** column, right-click **Seeker 50**, point to **Go To**, and then click **Related Links**.
7. Click **View passed source values**.

Notice that the value of Product item that will be passed is now Product.

8. Under **Available links**, click **Workshop 1 Drill-through Definition**.

The results appear as follows:

A↕ % Returned: Descending order					
Product type	Product	Quantity	Return quantity	% Returned▼	Lost revenue
Binoculars	<u>Seeker 50</u>	159,701	2,282	1.43%	\$211,267.56
Summary		159,701	2,282	1.43%	\$211,267.56

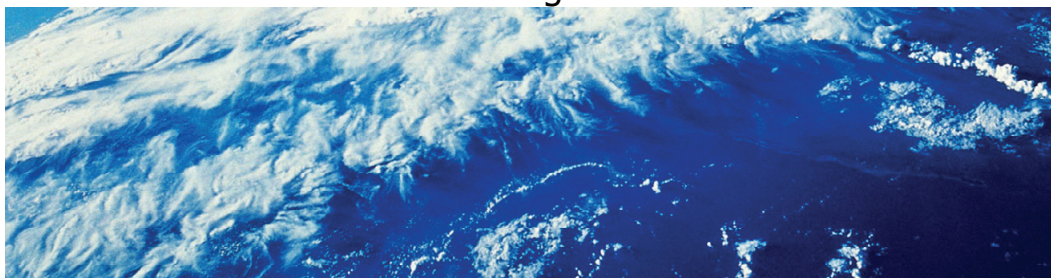
Because the item names now match at the Product level, the report filters as expected, and the lost revenue details are displayed for the product you selected.

9. Close all instances of **Internet Explorer**.



Enhance Report Layout

IBM Cognos BI



Business Analytics

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Objectives

- At the end of this course, you should be able to:
 - force page breaks in reports
 - modify existing report structures
 - apply horizontal formatting
 - specify print options for PDF reports
 - format data and report objects


If you intend to teach this module, students should be familiar with:

- Report Studio Basics
- List reports
- Crosstab reports
- Filters
- Calculations

Suggested modules to reference:

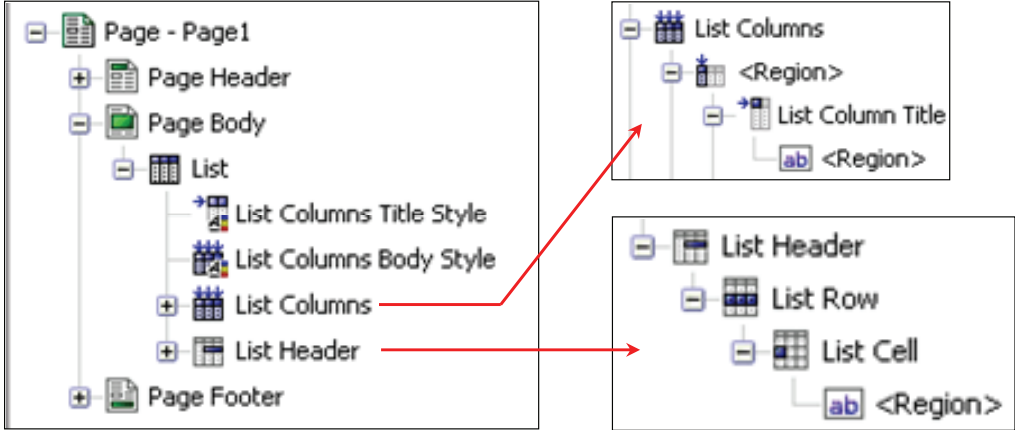
- Introduction to the Reporting Application
- Create List Reports
- Create Crosstab Reports
- Focus Reports Using Filters
- Extend Reports Using Calculation

INTERACTION - Star Sticker: Use the star sticker to highlight each objective as it is introduced.

Business Analytics


View the Structure of the report

- To view your report in a different way and see how objects are organized, view the page structure.



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View the page structure to to:

- view the entire contents of a report page in a tree structure
- move objects quickly from one area of a page to another
- modify object properties

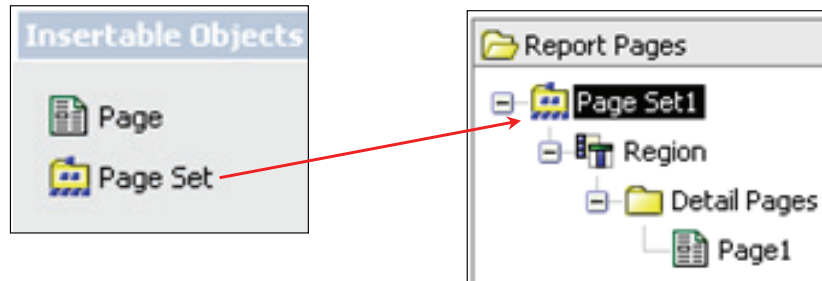
To view the page structure, on the toolbar, click View, and then click Page Structure. A tree structure is useful for locating the objects in a page and troubleshooting problems with nested objects.

If you have a complex layout, it may be difficult to select, cut, and paste objects in the layout view. Objects are easier to locate in the page structure view. This view can also be helpful if you want to modify an object but are not sure where the object is located within the report structure. Once you know where an object is placed, you can select it and modify its properties.

Objects can be changed in either view, depending on your preference. For example, you can group and sort list columns in the page structure view. Any changes made in the page structure view will also be visible in the page design view.

Force Page Breaks in Reports

- Page sets let you associate report pages with a query structure to force page breaks.



To force page breaks based on a data item, you must associate the page set with a query and then define a grouping structure for the page set.

For example, you can use a page set to create a report that contains detail pages displaying data for each order method. Each order method type will begin on a new page.

In the slide example, Page Set1 has been grouped by Region. This page set will begin a new list for each region.

Additional Information

You can add multiple detail pages to a page set.

You can also create nested page sets, and can define a master-detail relationship between them to see data in the nested page set that is related to the data in the parent page set. For example, you have a page set that shows pages of product line information. The page set contains a nested page set that shows pages of product type information.

Demo 1: Create a Report Structured on Data Items

Purpose:

You have been asked to create a report showing sales rep revenues generated in each sale

Server: localhost
 User/Password: brettanf/Education1!
 Studio: Report Studio
 Package: Go Data Warehouse (query)
 Report Type: List
 Folder: Sales and Marketing (query)
 Namespace: Sales (query)

Task 1. Open the report

1. In **Report Studio**, click **File**, click **Open**, navigate to **Public Folders\B5158\Module 15_Enhance Report Layout\Demo 1 Start**, and then click **Open**.
2. On the toolbar, click **Run Report**.

A section of the results appear as follows:

Country	Employee name	Revenue
Americas		
Brazil	Alexandre Pereira	34,720,977.7
	Beatriz Couto	3,842,910.29
	Eduardo Guimarães	48,839,028.63
	Morela Castro	3,131,988.79
Canada	Brendon Pike	24,827,214.69
	Carole Claudel	15,728,893.35
	Diane Sheppard	23,090,003.47
	Donald Chow	33,162,970.86
	Elaine Varney	937,875.13

3. Click **Page down**.

Multiple sales regions are displayed on the same page. You want each sales region to display on a different page.

4. Close **IBM Cognos Viewer**.

Task 2. Add page sets to the report.

1. Point to **Page Explorer**, and then click **Report Pages**.
2. In the **Insertable Objects** pane, double-click **Page Set** to add it to the **Report Pages** pane.
3. In the **Properties** pane, under **Data**, in the **Query** list, click **Query1**.
This will associate the query to the page set.

Task 3. Define the grouping structure for the page set.

1. Double-click the **Grouping and Sorting** property.
2. Drag **Region** to the **Groups** folder, and then click **OK**.
3. In the **Report Pages** pane, drag **Page1** to the **Detail Pages** folder under **Region**.
4. Run the report, and click **Page down** to examine multiple pages.
The different sales regions are now on separate pages.
5. Close **IBM Cognos Viewer**.

Task 4. Add a cover page to the report.

1. In **Report Pages**, from the **Insertable Objects** pane, drag a **Page to Report Pages**.
2. In the **Properties** pane, under **Miscellaneous**, in the **Name** box, type **Cover**, and then press **Enter**.
3. In the **Report Pages** pane, drag **Cover** above **Page Set1**.
4. In the **Report Pages** pane, double-click **Cover**.
5. From the **Insertable Objects** pane, drag a **Table** onto the work area with **1 column** and **3 rows**.
6. Click the table **Container Selector**, and then from the toolbar, click **Center**.
7. Drag a **Text Item** into the top table cell, in the **Text** box, type **Total Revenue by Sales Representatives** and then click **OK**.
8. Drag a **Text Item** into the bottom table cell, and then in the **Text** box, type **Sales Report** and then click **OK**.
9. Ctrl-click the **Total Revenue by Sales Representative** and **Sales Report** text items (not the entire cells), and from the toolbar, change the font to **Arial Black**.
10. Change the font size to **20pt**, and the font color to **Navy**.
11. Drag an **Image** to the middle table cell, click the **Image**, and then in the **Properties** pane, double-click the **URL** cell.
12. In the **Image URL** dialog box, click **Browse**, click **cover1.jpg**, and then click **OK** twice to close each dialog box.
13. Click anywhere on the page outside of the table, and then from the toolbar click **Middle**.

Instructor Notes

If students are unable to center the table using the container selector, have them center each item individually. Using Internet Explorer, students shouldn't experience this problem, but it has been seen in Firefox.

14. From the toolbar click **Run Report**.

The results appear as follows:



15. Close IBM Cognos Viewer.

Task 5. View the report structure and make changes to the report using the structure view.

1. Point to **Page Explorer**, and then click **Page 1**.
2. From the **View** menu, click **Page Structure**.

All the objects of the report are displayed in a tree structure. Here you can quickly move and modify objects within the page of the report.

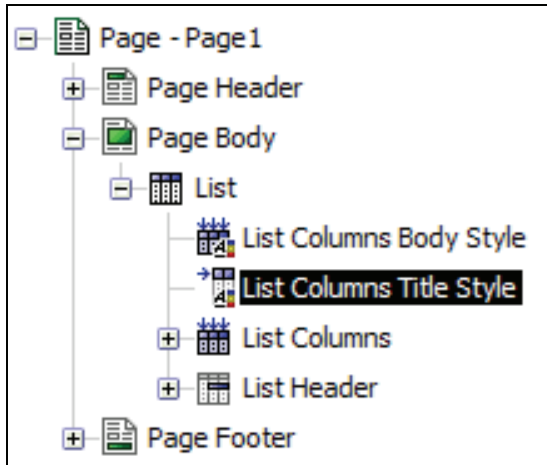
3. Expand **Page - Page1**.

The page header, page body, and page footer of the report page are displayed. You want to view the structure of our list and quickly modify the format of all the list column titles in the report.

4. Expand **Page Body**, and then expand **List**.

5. Click **List Columns Title Style**.

The results appear as follows:



6. In the **Properties** pane, under **Font & Text**, double-click **Font**, change the font to **Arial Black, 12pt, Italic**, and then click **OK**.

7. From the **View** menu, click **Page Design**.

The list column titles are changed to reflect the modifications you made to the page structure.

8. From the toolbar click **Run Report**.

The title page you created appears on page 1.

9. Click **Page down** to view the other pages of the report with the formatting you created.

A section of the results appear as follows:

<i>Country</i>	<i>Employee name</i>	<i>Revenue</i>
Americas		
Brazil	Alexandre Pereira	34,720,977.7
	Beatriz Couto	3,842,910.29
	Eduardo Guimarães	48,839,028.63
	Morela Castro	3,131,988.79
Canada	Brendon Pike	24,827,214.69
	Carole Claudel	15,728,893.35

10. Close **IBM Cognos Viewer**.

Leave Report Studio open for the next demo.

Results:

You created a report showing sales rep revenues generated in each region with each sales region on a separate page. You created and designed a title page for the report. You also made changes to the report using the structure view.

Horizontal Pagination

- Horizontal Pagination enables you to span wide reports across multiple PDF pages with the appropriate page number.

Camping Equipment	Cooking Gear	TrailChef Canteen	2007	Telephone	2,957	8.12	14.89	14.52	42,921.53	18,910.69
Camping Equipment	Cooking Gear	TrailChef Canteen	2007	Web	167,354	7.54	14.89	13.39	2,160,453.19	937,774.11
Jan 22, 2008				1...[A]					8:55:15 AM	

TrailChef Canteen	2007	Telephone	24,010.84	44,029.73
TrailChef Canteen	2007	Web	1,222,679.08	2,491,901.06
Jan 22, 2008			1...[B]	

You can only use horizontal pagination with list and crosstab reports.

Adding Horizontal Page Numbers

- There are three different options for adding horizontal page numbers:
 - Preset (using Number Style)
 - Custom Number Style
 - Report Layout Functions

Choose a preset number style from the list of styles.

Edit a Number Style to create your own custom style.

Use a Layout Calculation from the toolbox tab to create an expression that determines a page number style.

Demo 2: Format a Report for Horizontal Viewing

Purpose:

You need to create a list report that fits on one page. You need to create a report with certain columns that repeat on each page. You also need to apply different page numbering formats using horizontal page numbering and report layout functions.

Server:	localhost
User/Password:	brettonf/Education1!
Studio:	Report Studio
Package:	Go Data Warehouse (query)
Report Type:	List
Folder:	Sales and Marketing (query)
Namespace:	Sales (query)

Task 1. Open the Report

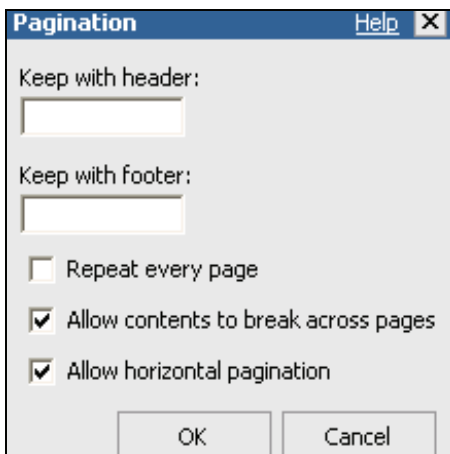
1. In **Report Studio**, click **File, Open**, and navigate to **Public Folders\B5158\Module 15_Enhance Report Layout\Demo 2 Start**, and then click **Open**.
2. On the toolbar, in the **Run Report** list, click **Run Report - PDF**.
Notice that the list is too wide for one page, so it is split across two pages.
3. Close **IBM Cognos Viewer**.

Task 2. Fit the list to the page width.

1. Click the list **Container Selector**.
2. In the **Properties** pane, under **General**, click **Pagination**, and then click the **ellipsis**.

Notice that the **Allow horizontal pagination** is selected. This ensures that new reports allow horizontal pagination.

The results appear as follows:



3. Clear the **Allow horizontal pagination** check box, and then click **OK**.
4. Run the report in PDF.

Notice that the entire list displays across the width of the page.

5. Close **IBM Cognos Viewer**.
6. On the toolbar, click **Undo** to re-select **Allow horizontal pagination**.

Task 3. Repeat columns on multiple pages.

When a report is split across pages, it is useful to repeat columns to carry context across. The author determines which list columns repeat. In this report, you will repeat Product name, Year, and Order method.


1. From the **View** menu, click **Page Structure**.
2. Expand **Page - Page1**, expand **Page Body**, expand **List**, and then expand **List Columns**.
3. Ctrl-click **Product**, **Year**, and **Order method type**.
4. In the **Properties** pane, under **General**, click **Pagination**, and then click the **ellipsis**.
5. Select the **Repeat every page** check box, and then click **OK**.
6. Run the report in PDF.

The Product name, Year, and Order method columns repeat on each page and provide the reader with sufficient content to understand the report. In a list, you can repeat any column.


7. Close **IBM Cognos Viewer**.
8. From the **View** menu, click **Page Design**.

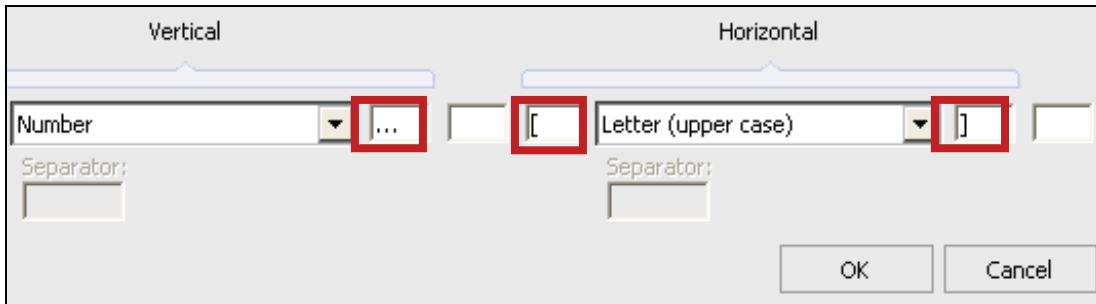
Task 4. Add horizontal page numbering.

Currently, the page numbering in your report is 1, 2, 3, and so on. Report Studio provides three methods to create the page numbering: preset, report layout functions, and custom number style.

1. To use a preset number, locate the **Page Number** object  in the page footer.
2. Double-click the **Page Number** object, click **1A**, then click **OK**, and then run the report.

The pages are now numbered 1A, 1B, 2A, 2B and so on.

3. Close **IBM Cognos Viewer**.
4. To create a number using **Custom Number Style**, double-click the **Page Number** object, and then click the **Edit** icon .
5. In the **Custom Number Style** window, add the following formatting, and then click **OK** twice to close each dialog box.



6. Run the report in PDF.
The custom page number style is applied.
7. Close **IBM Cognos Viewer**.

Task 5. Create numbers using report layout functions. (Instructor Only)

1. To create a number using report layout functions, right-click the **Page Number** object, and then click **Delete**.
2. From the **Insertable Objects** pane, click the **Toolbox** tab, and drag a **Layout Calculation** to the middle cell of the footer.
3. In the Expression Definition box, create the following expression:

```
if ( HorizontalPageCount() = 1) then (number2string(PageNumber()))
else (number2string(PageNumber()) + '...( ' +mapNumberToLetter('A',
HorizontalPageNumber()-1)+ ' )')
```
4. Validate the expression, and then click **OK**.
5. Run the report in PDF.
The page numbers are now 1...(A), 1...(B), 2...(A), 2...(B), and so on.
6. Close **IBM Cognos Viewer**.

Results:

You created a list report with columns too wide for one page and then modified it to fit on one page. You modified a report so that certain columns repeated on each page. You also applied different page numbering formats using horizontal page numbering and report layout functions.

Task 5, step 3: This particular formula works because there are only two horizontal pages. Create a text file of the expression and cut and paste it into the dialog. This saves time and eliminates typos while building the formula.

Modify Structures

- By unlocking the cells, you can add multiple items to a single column to tailor a report to your needs.

Position name	Contact Information
<Position name>	Work phone <Work phone>ext. <Extension>
	Email <Email>
	Date hired <Date hired>

**Add a
table to
a row**

Add text items and additional query items to unlocked cells

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Unlock cells to manipulate an object's contents. Once they are unlocked, you can change the text and add objects inside existing objects. This feature is useful for displaying related information in a single column, or for renaming a column. You can add additional rows to a list report to add extra information.

Add additional rows to a list report using the Structure menu

Once a new row is added you can merge the cells by selecting one or more cells and then clicking the Merge cells button.

INTERACTION - Toolbar Emoticons > Raise Hand: Name the only report type to which you can add rows of cells? (A list report is the only report type to which you can add a row of cells)

Demo 3: Create a Condensed List Report

Purpose:


The Human Resources department has requested a list of detailed sales rep information in each city. To reduce the number of columns in the report, you will combine information in one column.

Server: localhost
User/Password: brettonf/Education1!
Studio: Report Studio
Package: Go Data Warehouse (query)
Report Type: List
Folder: Sales and Marketing (query)
Namespace: Sales (query)

Task 1. Open the report.

1. In **Report Studio**, click **File, Open**, and navigate to **Public Folders\B5158\ Module 15_Enhance Report Layout\Demo 3 Start**, and then click **Open**.
2. Run the report in **HTML**.
The report data spreads out across the page. You want to condense it so that some of the data appears in a single column.
3. Close **IBM Cognos Viewer**.

Task 2. Unlock cells and condense report data.

1. On the toolbar, click **Unlock (Currently Locked)**  to unlock the cells of the report, and then from the **Insertable Objects** pane, click the **Toolbox** tab.
2. Drag a **Table** to the **Work phone** column to the right of **<Work phone>**, with **1** column and **3** rows, and then click **OK**.

The results appear as follows:

City	Employee name	Position name	Work phone	Extension	Email	Date hired
<Country>						
<City>	<Employee name>	<Position name>	<Work phone>	<Extension>	<Email>	<Date hired>
<Country>						
<City>	<Employee name>	<Position name>	<Work phone>	<Extension>	<Email>	<Date hired>


3. Drag **Work phone** into the first row of the table, then drag **Email** into the second row, and then **Date hired** into the third row.

4. Drag **Extension** into the top table cell, to the right of **Work phone**.

The results appear as follows:

City	Employee name	Position name	Work phone	Extension	Email	Date hired
<Country>						
<City>	<Employee name>	<Position name>	<Work phone> <Extension>		<Email>	<Date hired>
<Country>						
<City>	<Employee name>	<Position name>	<Work phone> <Extension>		<Email>	<Date hired>

You can add text in front of the data items to identify them.

5. From the **Insertable Objects** pane, drag a **Text Item** to the left of the **Work phone** object in the table.
6. In the **Text** box type **Work phone:** press the spacebar again, and then click **OK**.
7. Repeat steps 5 and 6 to add **Text Item** objects reading **Email:** and **Date hired:** to the left of **Email** and **Date hired**.
8. Drag a **Text Item** between **Work phone** and **Extension**, press the spacebar, type **ext.** and then click **OK**.
9. Click **Lock (Currently Unlocked)**  to lock the cells of the report, then Ctrl-click the **Extension**, **Email**, and **Date hired** columns, and then press **Delete**.
10. In the list column, click the **Work phone** column title, in the **Properties** pane, under **Data Item**, in the **Label** box, type **Contact Information**, and then press **Enter**.

Once cells are unlocked, query items can be added directly from the Insertable Objects pane.

INTERACTION - Toolbar Emoticons > Raise Hand: Do we need to add data items as columns before we can open and condense the report?

(Data items do not have to be added as columns to the page design first and then added to the cells, as we have done in this demo. We added the query items first so that students could run the report and see the difference between a report with non-condensed data versus a report with condensed data.)

Task 3. Add rows and merge cells.

1. Click the **Country** header, from the **Structure** menu, point to **Headers & Footers**, click **Insert List Row Cells Below**, and then click **OK**.

A row appears with a number of cells equal to the number of columns currently in the report.

2. Press **Esc** to deselect all currently selected items.
3. In the new row, Ctrl-click each cell, and then from the **Structure** menu, point to **Headers & Footers**, and then click **Merge List Row Cells**.
4. Click **Unlock (Currently Locked)** to unlock the cells of the report
5. Insert a **Text Item** into the row, in the **Text** box type **Please contact regional manager to make changes.** and then click **OK**.
6. With the row selected, align the text in the center of the cell.
7. Press **Esc** to deselect all currently selected items.
8. From the toolbar, click **Lock (Currently Unlocked)** to lock the cells of the report.

9. From the toolbar click **Run Report**.

The results appear as follows:

City	Employee name	Position name	Contact Information
Australia			
Please contact regional manager to make changes.			
Melbourne	Alice Walter	Branch Sales Manager	Work phone: +(61) 03 2982 4242 ext.8910 Email: AWalter@grtd123.com Date Hired: Feb 25, 2005
Melbourne	Alice Walter	Level 3 Sales Representative	Work phone: +(61) 03 2982 4242 ext.8910 Email: AWalter@grtd123.com Date Hired: Feb 25, 2005
Melbourne	Andrea Samuel	Payroll Clerk	Work phone: +(61) 03 2982 4242 ext.8224 Email: ASamuel@grtd123.com Date Hired: Apr 25, 2005
Melbourne	Catherine Fowlie	Warehouse Worker	Work phone: +(61) 03 2982 4242 ext.8465 Email: CFowlie@grtd123.com Date Hired: May 23, 2005
Melbourne	Cindy Sandles	Product Technician	Work phone: +(61) 03 2982 4242 ext.8225 Email: CSandles@grtd123.com Date Hired: Apr 11, 2005

The condensed report is now easier to read.

10. Close **IBM Cognos Viewer**.

Leave Report Studio open for the next demo.

Results:

You created a list of detailed sales rep information in each city. To reduce the number of columns in the report, you combined information in one column. You also added additional information by adding a row, merging the cells within the row, and adding a text item with a message.



Change PDF Orientation to Suit Report Objects

- You can set the page orientation and size for each page in the report independently.

Year	Order method type	Revenue
2004	E-mail	95,402,796.21
	Fax	28,639,472.14
	Mail	22,766,850.51
	Sales visit	101,072,721.1
	Special	13,905,918.79
	Telephone	178,793,580.38
	Web	473,771,464.65
2005	E-mail	44,318,886.43
	Fax	19,896,187.76
	Mail	16,013,779.43

Page 1 - Portrait

Page 2 - Landscape

	Camping Equipment			Golf Equipment			Outdoor Protection			Personal Accessories			Mountaineering Equipment	
	Revenue	Quantity	Gross margin	Revenue	Quantity	Gross margin	Revenue	Quantity	Gross margin	Revenue	Quantity	Gross margin	Revenue	Quantity
2004	\$332,986,338	5,895,053	\$0.39	\$153,553,851	1,092,982	\$0.49	\$36,165,521	5,614,356	\$0.59	\$391,647,094	7,572,339	\$0.42		
2005	\$402,757,573	6,903,764	\$0.41	\$168,006,427	1,297,793	\$0.50	\$25,008,574	4,111,058	\$0.61	\$456,323,356	8,567,357	\$0.42	\$107,099,660	2,644,713
2006	\$500,382,423	8,399,156	\$0.42	\$230,110,271	1,536,772	\$0.51	\$10,349,176	1,599,585	\$0.58	\$594,009,408	10,706,015	\$0.43	\$161,039,823	3,700,262
2007	\$352,910,330	6,103,176	\$0.41	\$174,740,819	1,186,154	\$0.50	\$4,471,025	689,446	\$0.56	\$443,693,450	8,061,994	\$0.44	\$141,520,650	3,555,116

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INTERACTION - Toolbar Emoticons > Raise Hand: Ask the participants, how many of them produce reports in PDF output?

Set PDF Security Options

- You can secure PDF reports when you run the report with options.
- You can set a password to open the document, to use the access options.

Demo 4: Change a PDF Page from Portrait to Landscape Orientation

Purpose:

You have been asked to build a PDF report that contains a list report and a crosstab report. You will use PDF Page Setup properties to display individual report pages as portrait or landscape. You will then create a secured version of the report.

Server:	localhost
User/Password:	brettonf/Education1!
Studio:	Report Studio
Package:	Go Data Warehouse (query)
Report Type:	List
Folder:	Sales and Marketing (query)
Namespace:	Sales (query)

Task 1. Open the report.

1. In **Report Studio**, click **File, Open**, and navigate to **Public Folders\B5158\Module 15_Enhance Report Layout\Demo 4 Start**, and then click **Open**.

You will make a copy of this page so that you have a page header and footer on the second page.

2. From **Page Explorer**, click **Report Pages**.
3. Press **Ctrl**, drag **Page1** below **Page1**, and then double-click **Page2**.

4. Click the list **Container Selector**, and then click **Delete**.
5. From the **Toolbox** tab, and drag a **Crosstab** object into the report.
6. From the **Source** tab, add query items to the crosstab as follows:

	<#Product line#>			<#Product line#>		
	<#Revenue#>	<#Quantity#>	<#Gross margin#>	<#Revenue#>	<#Quantity#>	<#Gross margin#>
<#Year#>	<#1234#>	<#1234#>	<#1234#>	<#1234#>	<#1234#>	<#1234#>
<#Year#>	<#1234#>	<#1234#>	<#1234#>	<#1234#>	<#1234#>	<#1234#>

7. Click on the **Gross margin** fact cells.
8. In the **Properties** pane, under **Data**, double click **Data Format**.
9. In the **Format type** list, click **Percent**.
10. Under **Properties**, click **No. of Decimal Places**, and type **2**.
11. Click **OK**.
12. Click on the **Revenue** fact cells.
13. In the **Properties** pane, under **Data**, double click **Data Format**.
14. In the **Format type** list, click **Number**.
15. Under **Properties**, click **No. of Decimal Places**, and type **0**.
16. Click **OK**.
17. From the **File** menu, click **PDF Page Setup**.

The Orientation is set to Portrait by default. This is the setting for the entire file.

18. Click **OK**, and then from the **Run Report** list, click **Run Report - PDF**.

The crosstab gets split across two pages because the page is not wide enough when portrait page orientation is used.

19. Close **IBM Cognos Viewer**.

Task 2. Change the page orientation from portrait to landscape.



1. On **Page2**, use **Select Ancestor** to select the **Page** object.
2. In the **Properties** pane, under **General**, double-click **PDF Page Setup** property.
3. Select **Override the page setup for this page** check box, then select **Landscape**, and then click **OK**.
4. Run the report in **PDF**.

The crosstab now fits on a single page (page 2). You can vary the orientation by page.


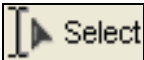
5. Close **IBM Cognos Viewer**.
6. Save the report to **My Folders** and name it **Demo 4_Enhance Report Layout**.

Task 3. Explore an unsecured PDF version of the report.

In this task, you will copy some text from the PDF and attempt to print the document to prove that there is no security on the PDF document. In the next task, you will create a PDF output which will not allow for text copying.

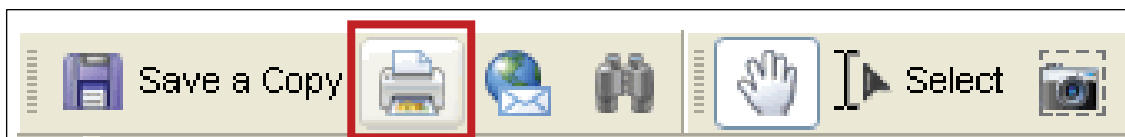
1. Navigate to **My Folders > Demo 4_ Enhance Report Layout**
2. Click **Run with options**  to run the report.
3. In the **Format** list, click **PDF**, under **Delivery**, click **Save the report**, click **Run**, and then click **OK**.
4. Click **Refresh**  located to the right of **Log Off**.

If necessary, repeat this step until you have a saved output for **Demo 4_Enhance Report Layout**.

5. Click **Demo 4_Enhance Report Layout** to open the report.
6. From the PDF toolbar, click **Fit Width** .
7. From the PDF toolbar, click the **Select tool** .
8. Copy text from the list to the clipboard.
9. From the **Start** menu, click **Run**, type **Notepad**, and then click **OK**.
10. Paste the text into the **Notepad** document.

This proves that you can copy the content from the PDF document into another document.

11. Close **Notepad** without saving the document.
12. In the report output, from the PDF toolbar, click the **Print** icon.




The Print screen appears, indicating you are able to print this document.

13. Click **Cancel**, as you do not need to print the document.
14. Click **Return** to go back to **IBM Cognos Connection**.


Task 4. Secure a PDF report.

1. In **My Folders**, to the right of **Demo 4_Enhance_Report_Layout**, click **Run with options**.
2. In the **Format** list, click **PDF**, under **Delivery**, click **Save the report**, and then click **advanced options**.
3. In the **Options** section, under **Formats**, ensure **PDF** is selected, and then click **Set**.

4. In the **Access control** section, select the **Requires a password to open the report** check box, type **Education1!** in the **Password** and the **Confirm Password** text boxes, and then click **OK**.
5. On the **Run with advanced options** window, click **Run**, and then click **OK**.
6. Click **View output versions for this report - Demo 4_Enhance Report Layout** , verify the time to ensure this version is the one you just ran, and then click **PDF**.

You are prompted to type a password because you secured this version of the report.

7. Type the password **Education1!**, and then click **OK**.

The report opens in PDF. Look for the lock  on the bottom left window of the report, and hover your mouse over the icon.

The tool tip shows the security of the PDF document. This document is completely secured. You cannot Print, Edit, or Copy this document.

Notice the Print and Copy icons from the PDF toolbar are disabled. You can try to copy some text using the Ctrl-C key sequence, but you will not be able to paste any text.

8. Click **Return** to return to **IBM Cognos Connection**.

Results:

You created a PDF report that contains a list report and a crosstab report. You used PDF Page Setup properties to display individual report pages as portrait or landscape. You then created a secured version of the report that required a password to access.

Format Objects across a Report

- Format reports quickly and consistently using Cascading Style Sheet (CSS) classes.

CSS classes are used in reports and templates.

To determine what class an object uses, select the object and view the Classes property. An object also inherits the classes set for its parent objects.


Demo 5: Format Objects Across a Report (Instructor Only)

Purpose:

In Report Studio, you will override a global style to modify the way report title objects appear in the report. You will also add a local style and will use it to format the report footer text. You will then create a report and observe how these style changes affect it.

Server: localhost
 User/Password: brettontf/Education1!
 Studio: Report Studio
 Package: Go Data Warehouse (query)
 Report Type: List
 Folder: Sales and Marketing (query)
 Namespace: Sales (query)

Task 1. Explore Global Class Extensions.

1. In the list report, click the report title text in the page header, and then in the **Properties** pane, observe that the **Classes** property is **Report title text**.
2. In the **Properties** pane, click **Select Ancestor** , click **Block**, and then observe that the **Classes** property is **Report title area**.
3. On the **Explorer** bar, point to the **Page Explorer**, and then click **Classes**.
4. In the **Global Class Extensions** list, click **Report title text**.

Report title text class corresponds with the class name you observed on Page 1. In the Preview pane, the sample text is underlined. You can explore the Report title area class to preview its style.

This is an optional demo to be completed by the instructor if time permits

Task 2. Override a class style definition and then add a new class.

You will now change the report title text style. The changes you make will apply only to instances of the style in this report.

1. With the **Report title text** style still selected, in the **Properties** pane, double-click the **Font** cell.
2. Click **Foreground Color**, click **Blue**, and then click **OK**.
3. Click **OK** again, point to **Page Explorer**, and then click **Page1**.

The change you made to the report title text style has been applied. You will now format the text in the footer of the report.

4. On the **Explorer** bar, point to **Page Explorer**, and then click **Classes**.
5. From the **Insertable Objects** pane, drag a **Class** to the **Local Classes** pane.
6. In the **Properties** pane, in the **Label** cell, delete the existing label, and then type **Report footer text**, and then press **Enter**.
7. In the **Properties** pane, double-click **Font** and change it to **Tahoma, 10pt, Bold, Underline**, and choose **Purple** as the foreground color, and then click **OK** and **OK** again.
8. In the **Properties** pane, click the **Horizontal Alignment** cell, and then in the list, click **Left**.

Task 3. Apply the new class to the report, add details, and run the report.

1. Point to **Page Explorer**, and then click **Page1**.
2. In the list report, Ctrl-click all three items in the page footer.
3. In the **Properties** pane, double-click the **Classes** cell.
4. Click **Report footer text**, click the **right arrow**, and then click **OK**.
The style from the Report footer text class you created is applied.
5. In the **Insertable Objects** pane, click the **Source** tab, and then expand **Sales order**.
6. Drag **Order number** to the list report.
7. Expand **Retailers**, and then drag **Retailer** to the end of the list report.
8. Expand **Time**, and then drag **Year** to the end of the list report.
9. Expand **Sales fact**, and then drag the **Revenue** to the list report.
10. In the page header, double-click the report title text, type **Revenue by Order Number** and then click **OK**.
11. Click the header block and click **Left**.

12. Run the report in **HTML**.

A section of the results appear as follows:

Revenue by Order Number			
Order number	Retailer	Year	Revenue
100001	Kavanagh Sports	2004	18,036.24
100002	Ar fresco	2004	58,828.44
100003	Universo Acampando	2004	41,255.35
100004	Ao ar livre	2004	228,447.45
100005	Galáxia do esporte	2004	71,237.12
100006	Mundo saudável	2004	35,015.7
100007	Tamarack Outfitter Rentals	2004	94,859.1
100008	Husky Outfitters	2004	603,586.64
100009	Sporting Goods Direct	2004	149,654.11
100010	Game On! Sports	2004	296,228.09
Dec 6, 2009 1 2:39:06 PM			

The formatting you applied using the named styles appears in the report.

13. Close **IBM Cognos Viewer**.

Leave Report Studio open for the workshop.

Results:

In Report Studio, you overrode a global class style and added a new local class style to the report.

Summary

- At the end of this course, you should be able to:
 - force page breaks in reports
 - modify existing report structures
 - apply horizontal formatting
 - specify print options for PDF reports
 - format data and report objects

INTERACTION - Check Sticker: Check off each objective as it is summarized.

Workshop 1: Analyze Retailer Contacts by Country

You have been asked to prepare a report that contains retailer contact information for each retailer for every country. The report must be broken into separate sections for each country so that the country appears as a section at the top and only the contacts for one country are displayed per page.

To create the report, you must perform the following high-level tasks:

- Navigate to Public Folders\B5158\Module 15_Enhance Report Layout.
- Open Workshop 1 Start, section Retailer country and group City.
- Apply page sets to display all contacts per Retailer country per page.

For more detailed information outlined as tasks, see the Task Table section.

For the final results, see the Workshop Results section that follows the Task Table section.

Workshop 1: Task Table

Task 1: Open the report.	
Where to Work	Hints
Toolbar	<ul style="list-style-type: none"> Navigate to Public Folders\ B5158\Module 15_Enhance Report Layout.
File > Open	<ul style="list-style-type: none"> Open Workshop 1 Start.
	<ul style="list-style-type: none"> Section - Retailer country, Group - City
Task 2: Add page sets to the report.	
Where to Work	Hints
Page Explorer -Report Pages	<ul style="list-style-type: none"> Add page set.
	<ul style="list-style-type: none"> Associate page set to Query1.
Task 3: Define the grouping structure for the page set.	
Where to Work	Hints
Report Pages\Page Set1\ Properties pane\ Grouping and sorting property	<ul style="list-style-type: none"> Add Retailer country under Groups
	<ul style="list-style-type: none"> Move Page1 under Retailer country detailed pages

If you need more information to complete a task, see the Step-by-Step instructions.

Workshop 1: Results

The results of the workshop appear as follows:

Australia					
City	Retailer name	Contact first name	Contact last name	Contact phone number	Contact extension
Genève	4 Golf only	Paul	Gaspar	61-39-6599874	557
	Beach Beds Pty Ltd.	Jake	Jenkins	+(61) 03 7210 3237	
	Beach Beds Pty Ltd.	Paul	Balesrieri	+(61) 02 5138 2922	
	Beach Beds Pty Ltd.	Scott	Crawford	+(61) 09 9321 3237	
	Beach Beds Pty Ltd.	Steve	Girvan	+(61) 03 9556 4876	
	Black Stump Camping Supplies	Emily	Goddard	61-70-2366548	877
	Blue Mountains Golfing Company	Adam	Balla	+(61) 03 7210 8227	
	Kanga Kampers	David	Giddey	+(61) 02 9437 5764	
	Kanga Kampers	Doug	Crease	+(61) 07 7238 1065	
	Kanga Kampers	Gina	Murphy	+(61) 02 5130 2137	1332
	Kanga Kampers	Linda	Balfe	+(61) 02 9437 1967	
	Kanga Kampers	Norman	Janac	+(61) 03 9321 4650	
	OutBack Pty	William	Horne	61-7-2355489	1223
	Southern Cross Pty.	Ernest	Jackson	61-9-8799544	125
	Watson's Golf Supplies	Julie	Mercer	61-3-9877889	8777
Melbourne	4 Golf only	Paul	Gaspar	61-39-6599874	557
	Beach Beds Pty Ltd.	Jake	Jenkins	+(61) 03 7210 3237	
	Beach Beds Pty Ltd.	Paul	Balesrieri	+(61) 02 5138 2922	
	Beach Beds Pty Ltd.	Scott	Crawford	+(61) 09 9321 3237	
	Beach Beds Pty Ltd.	Steve	Girvan	+(61) 03 9556 4876	

Workshop 1: Step-by-Step Instructions

Task 1. Open the report.

1. In **Report Studio**, click **File**, **Open**, and navigate to **Public Folders\B5158\Module 15_Enhance Report Layout\Workshop 1 Start**, and then click **Open**.
2. Click the **Retailer country** column body and click **Section**.
3. Click the **City** column body and then click **Group / Ungroup**.
4. On the toolbar, click **Run Report**.
Examine the results.
5. Close **IBM Cognos Viewer**.

Task 2. Add page sets to the report.

1. Point to **Page Explorer**, and then click **Report Pages**.
2. In the **Insertable Objects** pane, double-click **Page Set** to add it to the **Report Pages** pane.
3. In the **Properties** pane, under **Data**, in the **Query** list, click **Query1**.
This will associate the query to the page set.

Task 3. Define the grouping structure for the page set.

1. Double-click the **Grouping and Sorting** property.
2. Drag **Retailer country** to the **Groups** folder, and then click **OK**.
3. In the **Report Pages** pane, drag **Page1** to the **Detail Pages** folder under **Retailer country** so that **Page1** appears at the same level as **Detail Pages**.
4. Run the report, and click **Page down** to examine multiple pages.
Notice that each retailer country is on a separate page containing the contact information for contacts in that country alone.
5. Close **IBM Cognos Viewer**.

